

FIG. 1

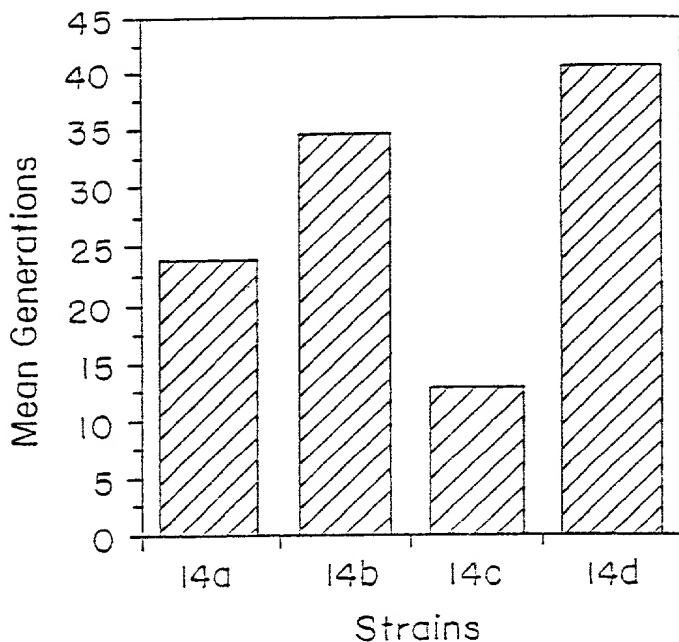


FIG. 2A

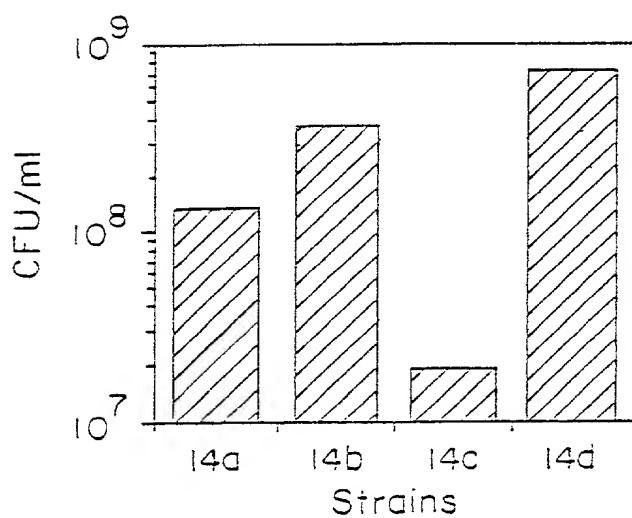


FIG. 2B

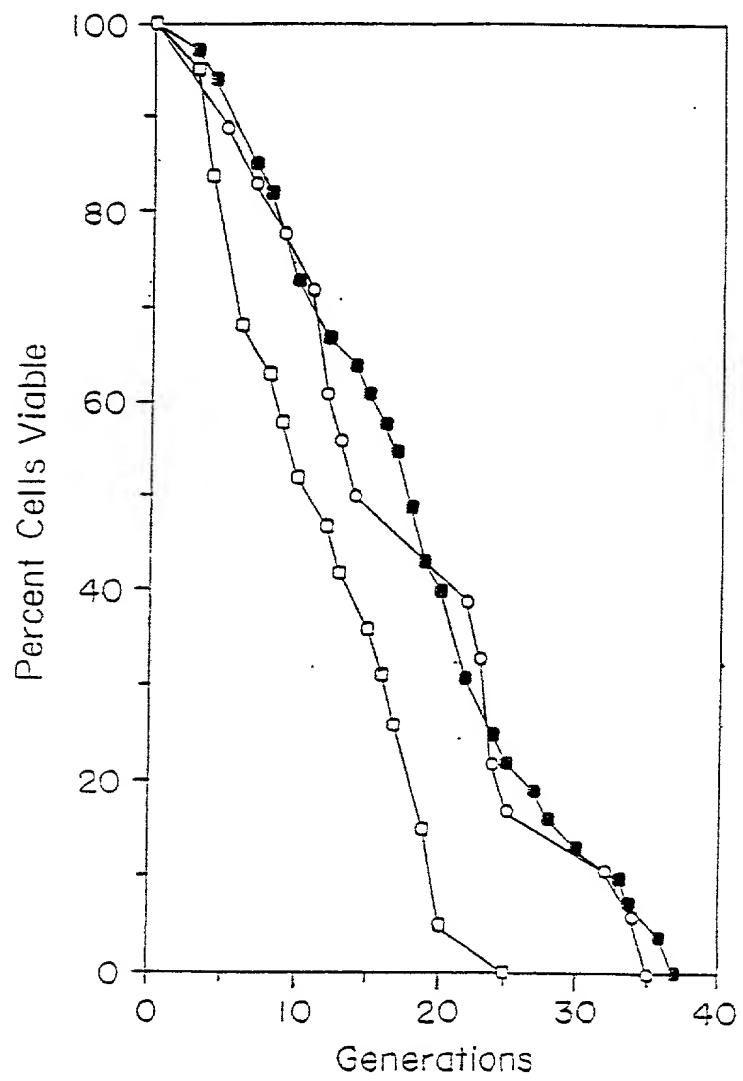


FIG. 3

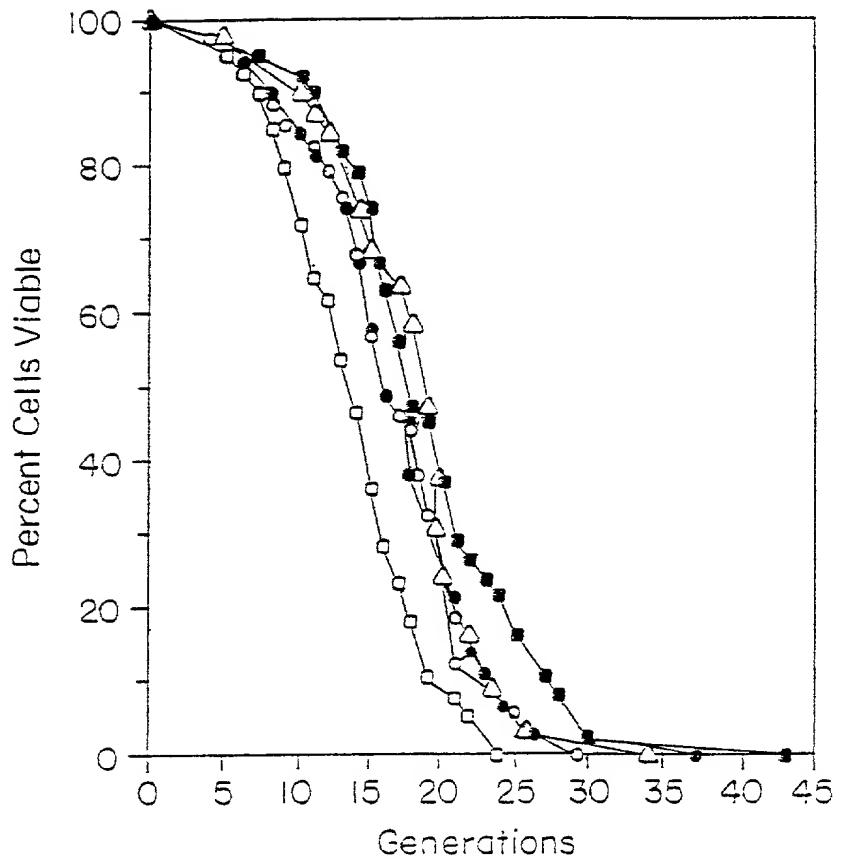


FIG. 4

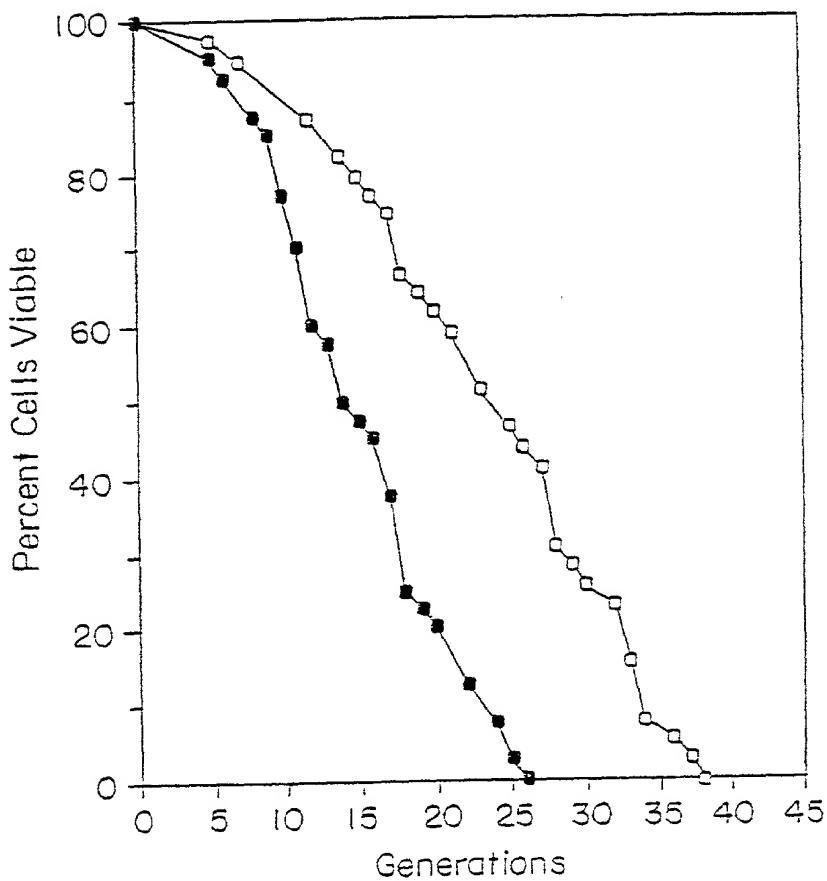


FIG. 5

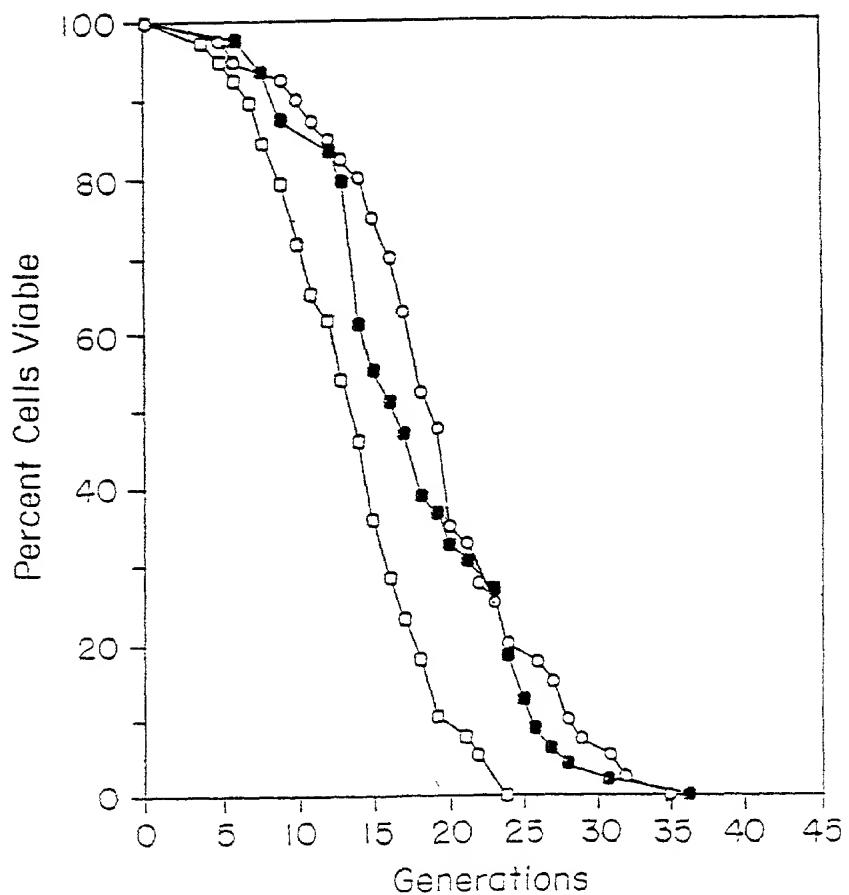


FIG. 6

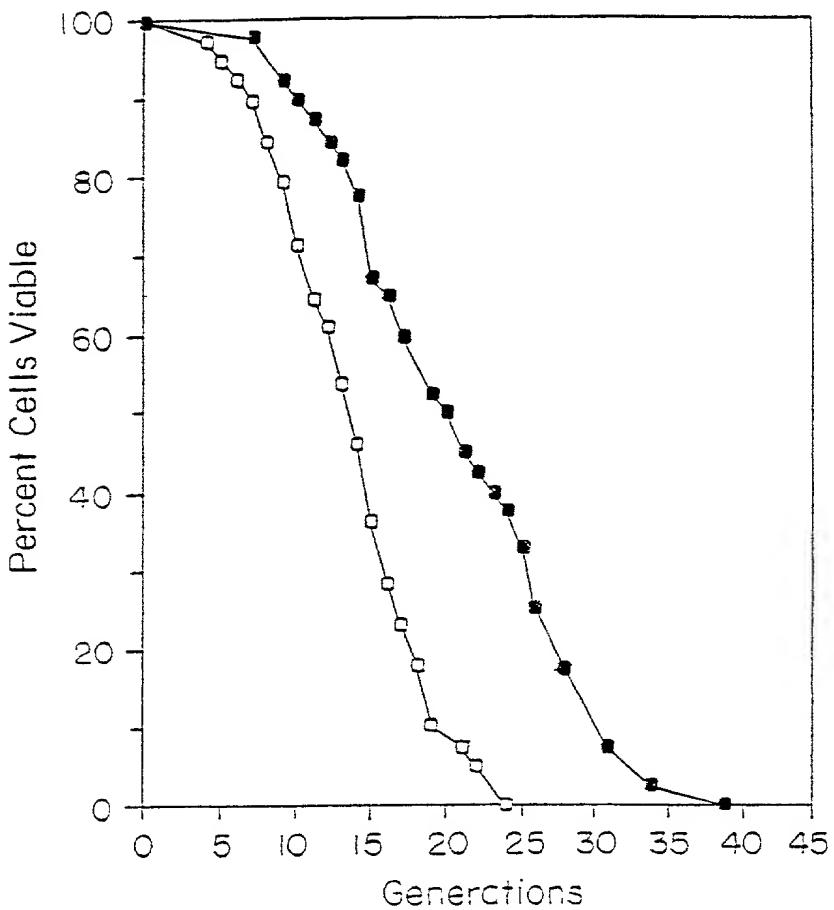


FIG. 7

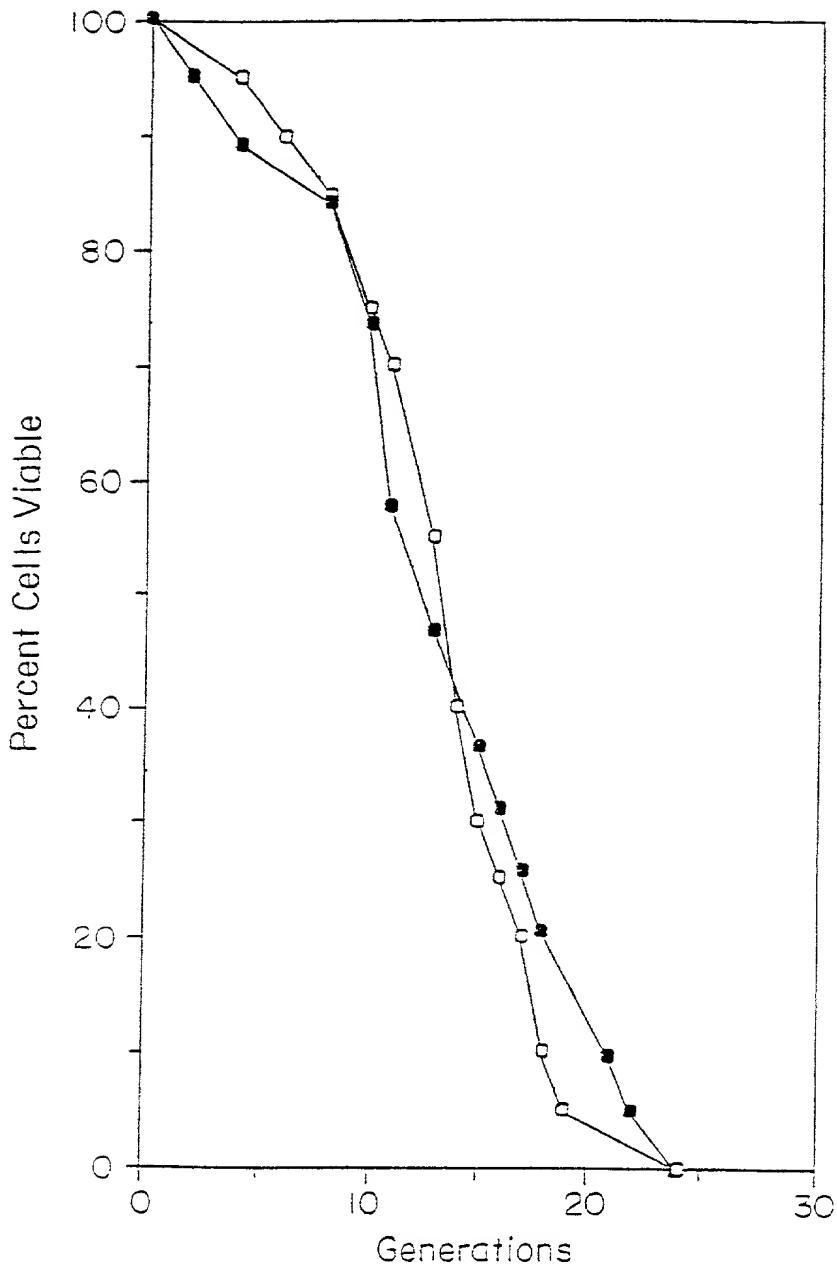


FIG. 8

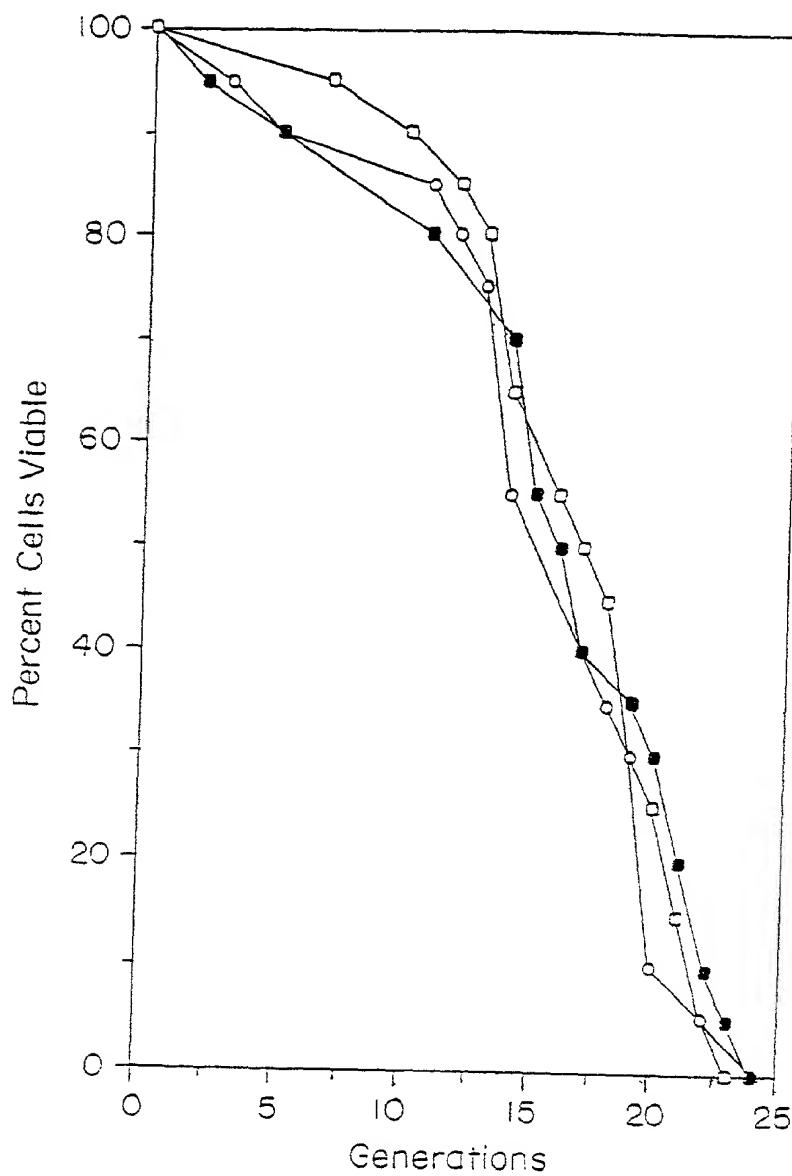


FIG. 9

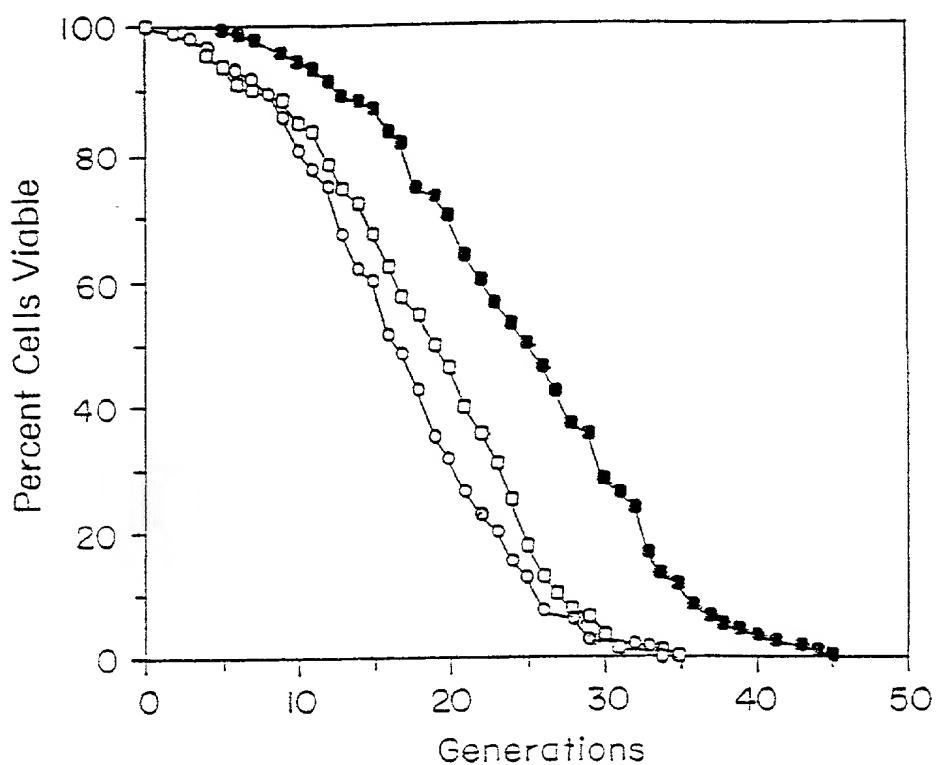


FIG. 10

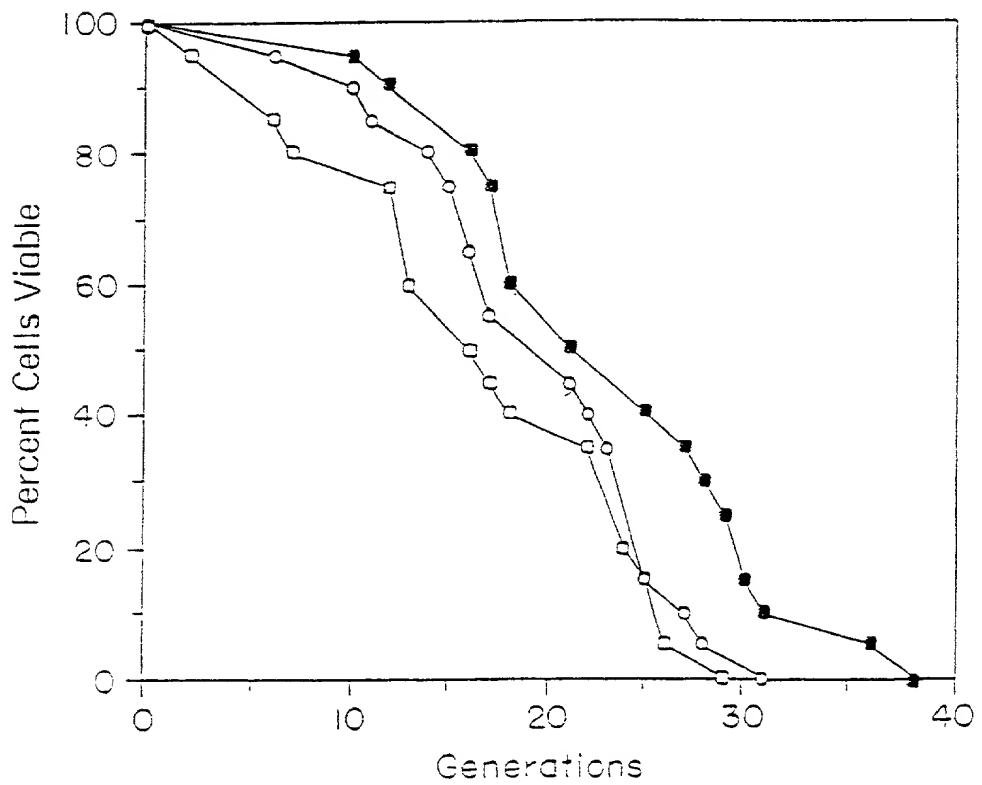


FIG. 11

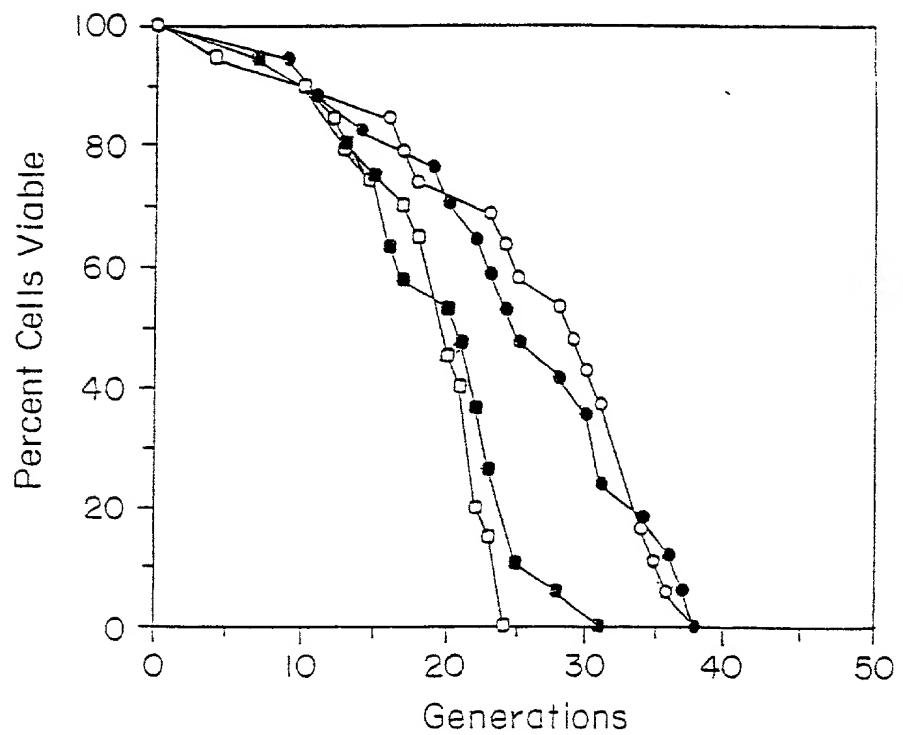


FIG. 12

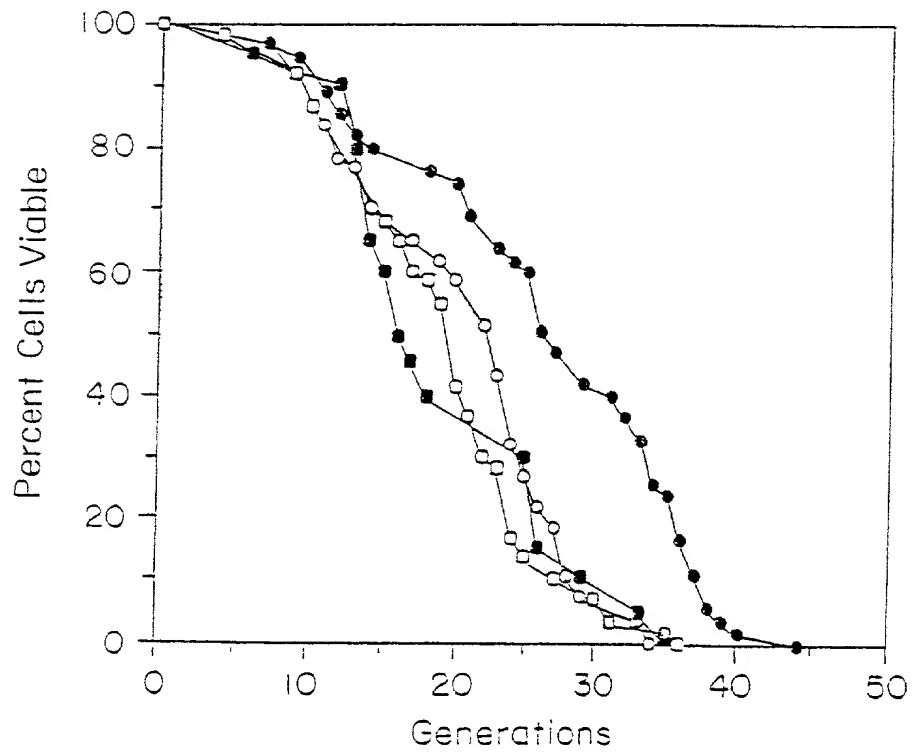


FIG. 13

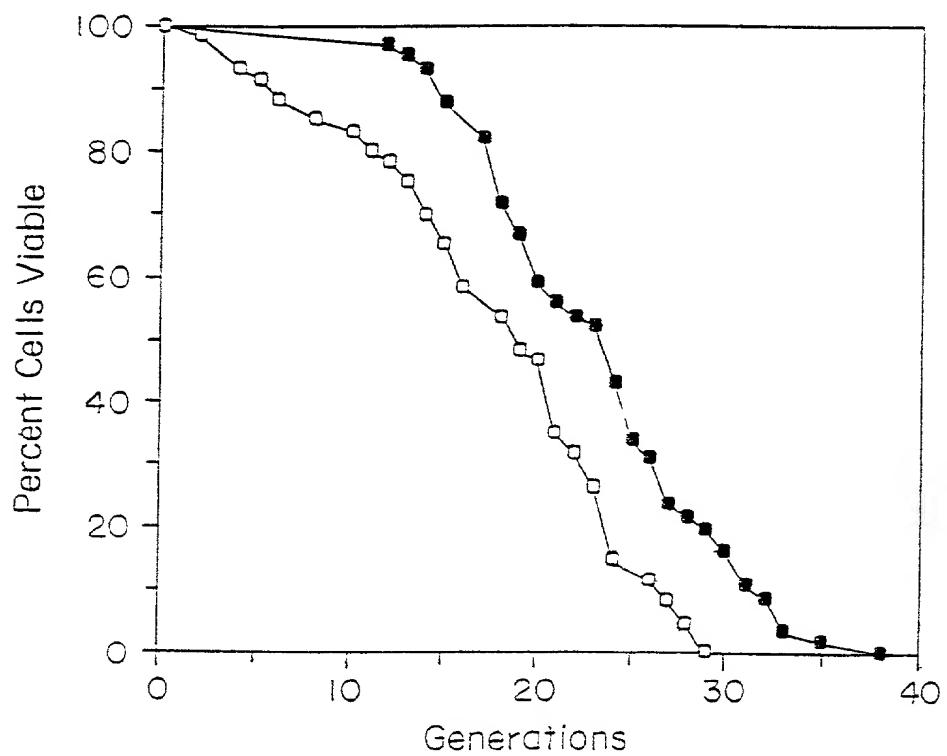


FIG. 14

FIG. 15A

1045	TCT TAC GCT TGT TCT CCA GGT TAC GCT AAG ACC CAA TGG CCT TCT GAA CAA CCT TCC GAT GGT AGA TCC GTT GGT	1119
242	S Y A C S P G Y A K T Q W P S K Q P S D G R S V G	266
1120	GGT TTA TAC TGT AAG AAC GGT AAA TTA TAC CGT TCC AAC ACC GAC ACT AAC AGT TTG TGT GTA GAA GGT CAA GGC	1194
267	G L Y C K N G K L Y R S N T D T N S L C V K G Q G	291
1195	TCT GCT CAA GCT GTT AAC AAG GTC TCC GGC TCC ATT GCT ATC TGT GGT ACC GAT TAT CCA GGT TCT GAA AAC ATG	1269
292	S A Q A V N K V S G S I A I C G T D Y P G S K N M	316
1270	GTC GPT CCT ACC GTA GTT GGC GCT GGT TCC CAA CCA ATC AAC GTC ATC AAG GAG GAC TCC TAC TAT CAA TGG	1344
317	V V P T V G A G S S Q P I N V I K K D S Y Q W	341
1345	CAA GGT AAG AAG ACC TCT GCC CAA TAC TAC GTT AAC AAC GCT GGT GTC TCT GTG GAA GAT GGT TGT ATC TGG GGT	1419
342	Q G K K T S A Q Y V N N A P V V I G V S V K D G C T I W G	366
1420	ACT GAG GGT TCC GGT GTC GGT AAC TGG GCC CCA GFT GTC TTG GGT GCT GGT TAC ACT GAT GGT ATC ACT TAC TTG	1494
367	T K G S G V G N W A P V V I G A G Y T D G I T Y L	391
1495	TCC ATC ATT CCA AAC CCA AAC AAC AAA GAA GCA CCA AAC TTT AAC ATC AAG ATC GTT GCC ACC GAT GGC TCT ACC	1569
392	S 1 P N P N K K A P N F N I K I V A T D G S T	416
1570	GTC AAT GGT GCT TGC TCT TAC GAA AAT GGT GTC TAC TCT GGC TCT GAC GGT TGT ACT GTT TCA GTT ACT	1644
417	V N G A C S Y K N G V Y S G S D G C T V S V T	441
1645	TCT GGT TCT GCT AAC TTT GTC TTC TAC TAG GCCTT'IT'T'CCTTGAAATATTGCAAAATAGCTTT'GCTAGTACTCCGGTTCAT	1734
442	S G S A N F V F Y *	451
1735	'TT' ATG GTT TAT TTT TCA ATT AGT TCG TTT TTC CAC AAT ACA AAA CAC AGT CCT TGT TAC TAT CCC TTT TAT	1809
1	M V F S I S F F H N T K H S P L Y Y P F Y	24
1810	TTC ATT ATT TTT TCT TTT TAG AGA TAC CAC TAG ATATTATCATATATAGCATATTATAAACATAAAAAGTCAAAGAAAAA ATG	1894
25	F I F S P L R Y H *	1
1895	TTP TTA TCA CTP TCT ATA ACT GCA TAT CTT TGT CAT TTC GAA TGA TGA TGTGC	1946
2	F I S L T A Y L F L H F E E *	17

FIG. 15B

1/1 AGC CTT TAA CGG GAT CTT CTA ACA ACA NAT AGC ATA ATA ACC AAC AAC CAG CTT CAG TGG K I, * R D I, F I, * Q Q I, * H N N Q K P K S F S V G S F N G S S N N Q T A * R S G L Q T * P K S F S V G A I, T G S S N N Q K P K S F S V G	31/11 GAT CCT ATC GAC ACG CCT TTT TTA GCG GTC TAA CAA TCT CCG TTT ATG TCG TAT GGA D Q P I D T P F I, F I, * R S N N L R P F M S Y G I S L S T R L F S G L T I S V Y V V W N S A Y R H A F F I, * R S N N L R C R M E	61/21 ATG TCT ATA CTT GAC CCT ACC TTA TTT CTC GAA TAT GCC TAT AAG GAT TTT CTC GAA AGA I S I, L D P T I, F L E Y A Y K D F L S K E R F L Y T I, T L P Y F S N M P I R I F S K E P Y T * P Y L I S R I C L * G F S R K E	121/41 AGG GCT TCG GGA AAG CGG CTC AGG CAA AAA TGA GCA AAA AAA AAA AAA AGA AAA R A S G K R R Q K * A K K K K K K R K G I, R E R G A P Q A K M S K K K K K E K G F G K E A P Q A K M S K K K K K K R	181/61 GAT TCG AAG ATC TAT GAA AAA TTT ATG CAG ATT CGT TGA GAG TTA TAA GGA TTT TAC TCT D S K T Y E K F M Q I R * E L * G F Y T S I R R S M K N L C R F V E S Y K D F T L F F E D I, * K N I Y A D S L R V I R I L F	241/81 301/101 TTA TGG TTA TAG GTT TCA TTT TAA AAA CAA GCA TAA ATT TTT TGT TTT GTC TTT CTC TTT L W L * V S F H S K I S K F V L C F V L F S S F Y G Y R F I L K S S I N F V C L P L F	211/71 GAT TCG AAG ATC TAT GAA AAA TTT ATG CAG ATT CGT TGA GAG TTA TAA GGA TTT TAC TCT D S K T Y E K F M Q I R * E L * G F Y T S I R R S M K N L C R F V E S Y K D F T L F F E D I, * K N I Y A D S L R V I R I L F	271/91 331/111 GAT TCG AAG ATC TAT GAA AAA TTT ATG CAG ATT CGT TGA GAG TTA TAA GGA TTT TAC TCT D S K T Y E K F M Q I R * E L * G F Y T S I R R S M K N L C R F V E S Y K D F T L F F E D I, * K N I Y A D S L R V I R I L F	1/1 GAT CCT ATC GAC ACG CCT TTT TTA GCG GTC TAA CAA TCT CCG TTT ATG TCG TAT GGA D Q P I D T P F I, F I, * R S N N L R P F M S Y G I S L S T R L F S G L T I S V Y V V W N S A Y R H A F F I, * R S N N L R C R M E
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FIG. 16A

Docket No.: 0050.1491-005
 Title: Genes Determining Cellular Senescence...
 Inventors: Leonard P. Guarente, *et al.*

361/121	TCC TGT CCT CTT TTP TTP CCA TCC TCC GTC GTC GAA GAA CTT TAT AGA TAG ATT	
S C P V L F F C H P L S P R A I L C R H *	A T E V E N F I D R F L	
P L S S F P F A I L C R H *	V E N F I D R F L	
421/141	TAC TCT TGA TTC TCA CGC ATC TCA GGC CAC CTG GAC ACT GTA CAT GGT TGT GAT TGT TCT	
Y S * P S H A S Q A T W T G H C T M V L * I L F S	A T E V E N F I D R F L	
T L D S H A S Q A T W T G H C T M V L * I L F S	D T V G C D C S	
L L I L T H L R P P G H C T M V L * I L F S	L D Y M V L * I L F S	
481/161	CCT TCT CAG TTA TCG AAA TTG ATC CTA GGC TPA TAC TCC AAA ATC GGC TCT GCA CAC GCC	451/151
F S Q L S K L * S * A Y T P K S A L H T P	G L Y S K I S A L H T P	
F I S Y R N * S P R L I L Q N R L C T R L	G L Y S K I S A L H T P	
F S V V T E I D P R L I L Q N R L C T R L	G L Y S K I S A L H T P	
541/181	TPA TTP TPG TGG TTP CAC TTP ACT AAC ACA ACA TPC TTP TAT TCA ATC AGA TCA ATA ACG	511/171
I F L W F H F T L T Q H N I F N Q I N E	T F Y S R S I *	
Y F C G F T L T Q H N I F N Q I N E	F I Q N Q I N E	
I F V V S L Y L * H N I F N Q I N E	F I Q N Q I N E	
601/201	AAC CAT TTC CAT CGT CCG ACT CAG CAT CGA TTP TAA CTA CGT CTA CAT CAA ATA ACT CCT	571/191
N H F H L P Q I S I D F N Y V V T S N E	T R Y S F I Q N Q I N E	
T I S I C R L S A D S A S I L T T S N E	T R Y S F I Q N Q I N E	
P F P S A D S A S I L T T S N E	T R Y S F I Q N Q I N E	
661/221	TAA TGT CTT ACA ATC ATC AGC CTC AAC TAT CTA TTA ACT CCG TCC AAT CAC TCT TGG AGC	631/211
* C L Q N H Q N H Q P Q L N Y L R P S N H S W S	T L P S N H S W S	
N V M S Y N H Q N H Q P Q L N Y L R P S N H S W S	T L P S N H S W S	
P * P L R L W A R * I T K E T I S V Q L S V L L	T L P S N H S W S	
R D P S A F G P D E * I T K E T I S V Q L S V L L	T L P S N H S W S	
V T P P P L G Q M N K R N K P K S K G S F S	T L P S N H S W S	

FIG. 16B

CGC T ^r TG ATC TCT C ^r TG G ^r T ^r T ^r TA ATC AGT TCA TAT CGA CAC AAT CTC CCT TGG C ^r T TGA	811/271
R L I S L V F * S V H I S P R N I S P W G F D	
A L D L S G F N Q F I S S P L A L M	
841/281	841/291
TGA ATA CAT CAA CAT CGA ATT CTG CTA ACT C ^r T T ^r T CCC CGA ATC CTA ATG CTG CTA	
* I H Q N I E F C * L F S P E S * C C *	
E N N T S T S N S A N S F S P N A A S	
901/301	931/311
GCA ACT CCA CTG GGC T ^r T CAG CCT CAA TGG CAA ATC CTC CAG CCA TTC TAC CAT TAA TCA	
A T P L G F O P O W N G K S S H T I N Q	
Q I H W A F S L N A N P A I L P L I N	
N S T G I S A S M A N P A I L P L I N	
961/321	991/331
ATG AGT T ^r TG ATC TGG AAA TGG ATG G ^r C CCA GGA GAA AAT CAA GCC ACG ATT TCA CGG TTG	
M S I W K N G W S Q R E K S H D F T V V	
* V F D L E M D G P R K S H D F T V V	
1021/341	1051/351
T ^r TG C ^r C CGA ACT C ^r T G ^r G TCA ATA CCT CCA G ^r T TAA TGA TGG AAA CAC CAT CCT CTT	
L L R T L V S 1 P V * L W K H H P L	
C S F E L W C Q Y L Q F N Y G N T I L F S S	
A P S N S G V N T S S L I M E T P S S	
1081/361	1111/371
CAG T ^r GA C ^r C CGT CAT CTC TCA GAA ATT TTA GCA ATA G ^r A ATA ATG CTG CTT CCA AAT	
Q * L L H S E I L F * S N S N A A S K C	
S D S C I S Q R N F S N A A S K C	
V T P A A S L R N F S N A A S K C	
1141/381	1171/391
G ^r G GAG TGG ATA ATT CGT CAT T ^r T G ^r T TGA G ^r T G ^r T CAA CGF CTT CAT CTA TGG TCG AAA	
V E W I R H L V A Q R L H L Y G R N	
W S G D N S S F V E * S L S T S S M V E I	
G V D N S S F G L S P V F I	

FIG. 16C

1201/401	TCA GCG CAC TAC CCC TTA GAG ATC TGG ATT ATA TCA AAC TTT CCA CTC ACC AGT TTT GCT
S A H Y P L * R P L * R D L S G L D Y I K L A T C H P L * P V W G L	
Q R T P L * R P L * R D L S G L D Y I K L A T C H P L * P V W G L	
1261/421	GCC GTT TTC AAA AAT TAG AAA CCC CCA GTG AAT CCA ATA TGG TGA GAG ACT TGA
A V F K N * K P V N P Q * N P V I Q Y G E R D L D M	
P F S K K I R N E T P S E S N M V R D L D M	
R F L Q K K I L E T P S E S N M V R D L D M	
1321/441	GTG ATG AAC AAA TTA AGC CAT TTT TCT TGG ACC TTA TTT TGG ATC CGT TCG GTA ACT ATT
C M N K L * A I F L G P Y F L D L I I D P F G S V R * L F	
V * T N * A I F L G P Y F L D L I I D P F G S V R * L F	
Y E Q I K P F F L D L I I D P F G S V R * L F	
1381/461	TGG TTC AAA AAC TAT GCG ATT ATT TAA CTG CCG AGC AAA AGA CAT TAT TAA TAC AAA CAA
W F K N Y A I J * L * R A K D I N T L I I N T N Y L	
G S K T M R L C D Y L T A E Q K T L I I N T N Y L	
V Q K L C D Y L T A E Q K T L I I N T N Y L	
1441/481	TAT ATC CAA ATG TTT TCC AAA TAT CAA TCA ATC AGT ACG GAA CCTC GTT CCT TAC AGA AAA
Y I Q M F S K Y Q I S I N Q S V R N S F L T E N	
I S K C F P N V F Q I S I N Q S V R N S F L T E N	
Y P N V F Q I S I N Q S V R N S F L T E N	
1501/501	TAA TAG ACA CTG TCG ATA ACG AAG TTC AAA TCG ATC TCA TTA TTA AGG GAT TTT CCC AAG
L * T L S I T K F K S N R S H Y I D L I K G I F P R	
Y R H C R * R S E V Q I R S H Y I D L I K G I F P R	
I D T V D N E V Q I R S H Y I D L I K G I F P R	
1561/521	ATG TTA CTT CGA TTG AGC AAG TGG TTA CTT TGA TAA ACG ATC TTA ATG GTA ACC ATG TGA
N L R L S K W L Y F D K R S * T L M V T M * P C D I	
I Y F S 1 E Q V V T L I N D L N G N H V D I	
F T S 1 E Q V V T L I N D L N G N H V D I	

FIG. 16D

FIG. 16E

2041/681 TGT CTT CTG ATG ACG TGA TTA ATG CTT CTA TGA ACA TTC TTT TGA CCA CCA TTT GAA TAT L L M T * L M I L * T F F * L P L I Y C F * R D * C F Y E H S F D Y H * Y I A S D V T N A S M N I L L T I D I F 2101/701	2071/691 TCA CAG TCA ATT TAA ATG TGC TAA TCA GGG ATA ATT TTG GTA ATT ATG CGT TAC AAA CGC S Q S I * M C * S G I I L V I M R Y K R H S Q F K C A N Q G * F W * L C V T N A T V N L N V L I R D N F G N Y A L Q T L 2161/721	2131/711 TAT TAG ACG TTA AGA ATT ATT CTC CTC CTC TGC CTC TGC CTC ACA ACA AAA ATT GTA ACG CAA TTG Y * T L R I I L C L L T T K I V T Q L I R R * E L F S S A C L Q Q K * * R N W L D V K N Y S P L L A Y N K N S N A I G 2221/741	2191/731 GGC AAA ACA GCT CTA GTA CAT TGA ATT ACG GTA ACT TTT GTA ACG ATT TTT CAT TGA AAA G K T A L V H * I T V T F V T I F H * K A K Q L * Y I E L R * L L * R F F I E N Q N S S S T P L N Y G N F C N D F S L K I 2281/761	2251/751 TGT GTA ACT TGA TTG TCC TTA CAA AGG ATT TAC TTT CAA GTA TTA AAA CTA CAT CCT ATG L V T * I S L Q K N Y F Q V L K L H P M W * L D C P Y K R I T S K Y * N Y I L C G N L I V I T K E L L P S I K T T S Y A 2341/781	2311/771 CAA AGA AAA TTA AGT TGA AAG TTA AAG CTT ATG CAG AGG CCA CAG GTA TAC CAT TCA CTG Q R K L S * K L K L M Q K P Q V H S L K E N * V E S * S L C R S H R Y T I H * K K I K L K V K A Y A E A T G I P F T D 2401/801	2371/791 ACA TAT CTC CTC AAG TCA CTG CAA TGA GTG ACA ATG TTC AAA CGA TTA ACA ACG AAA T Y L L K S L Q * V I T I F K R L T T K H I S S S H C N E S * Q S S N D * Q R K I S P Q V T A M S H N L Q T I N N E N	2431/811
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FIG. 16F

2461/821
 ATA AGA ACC CCC ATA ACA AAA ATA GTC ATA ATC ATA ATC ATA ACC ATA ACC ATG
 I R T P I T K I V I I I I I I I I T M
 * E P P * Q K * S * P C
 K N P H N K N S H N H N H N H N H A
 2521/841
 CTC ACA ATA ATA ATA ACA ATA ATA ATC ATA ATC ATA GTC ATA GTC ATA CCC GTC ATT TTT CTG TAC CAG
 I, T I I T I I K R V I P V I F L Y Q
 S Q * * * * Q * * S K E S Y P S F F T S
 H N N N N N N Q K S H T R H F S L P A
 2581/861
 CTA ATG CTP ACC ATA GAA GAA GCA GCA GCT CTG TAA CCA ATA ATT TCT CAA ACC ATT ATG
 I, M L T I E E V T A L * P I I S Q T N M
 * C L P * K K * Q L C N Q * F L K P I C
 N A Y H R R S N S S V T N N F S N Q Y A
 2641/881
 CAC AAG ATC AGA AAA TIC ACT CTC CGC AAC AAA TAA TGA ACT TCA ACC AAA ACG CAT ATC
 H K I R K F T L R N K L * T S T K T H I
 T R S E N S L S A T N Y E L Q P K R I S
 Q D Q K I H S P Q Q I M N F N Q N A Y P
 2701/901
 CCT CGA TGG GAG CAC CTT TCA ATT CTC AAA CTA ACC CAC CAT TGG TAA GCC ATA ACT
 P R W E H L L S I L K L T H W * A I T P
 L D G S T F F Q F S N * P T I G K P * L
 S M G A P S F N S Q T N P P L V S H N S
 2761/921
 CGT TAC AAA ACT TCG ACA ACC GCC AGT TTG CAA ATT TAA TGG CAC ATC CTA ATT CTG CTG
 R Y K T S T A S L Q I * W H I L I L L
 V T K L R Q P V C K F N G T S * F C C
 I, Q N F D N R Q F A N L M A H P N S A A
 2821/941
 CAC CAA TCC ATT CGT TCT CAT CAT CTA ACA TTA CCA ATG TGA ATC CTA ATT CAA GGG
 H Q S I R S H H L T L P M * I L M F Q G
 T N P F V L I I * H Y Q C E S * C F K G
 P I H S F S S N I T N V N P N V S R G

FIG. 16G

2891/961	2911/971
D L S S L D L * * M K P T K L M L I T S	D L S S L D L * * M K P T K L M L I T S
I * A A W I Y D E * N R Q N * C * S L L	I * A A W I Y D E * N R Q N * C * S L L
F K Q P G F M M N E T D K I N A N H F S	F K Q P G F M M N E T D K I N A N H F S
2941/981 CGC CAT ACT CTA ATG CAA ATA GTC AAA ACT TCA ATG AAT CTT TTG TGC CTC GTA TGC TGT	2971/991 CGC CAT ACT CTA ATG CAA ATA GTC AAA ACT TCA ATG AAT CTT TTG TGC CTC GTA TGC TGT
R H T L M Q I V K T S M N L L C L V C N	R H T L M Q I V K T S M N L L C L V C N
A I L * C K * S K L Q * I F C A S Y A I	A I L * C K * S K L Q * I F C A S Y A I
P Y S N A N S Q N F N E S F V P R M Q Y	P Y S N A N S Q N F N E S F V P R M Q Y
3001/1001 ATC AAA CGG AAG GTG CAA ACT GGG ATT CAA GTP TGT CAA TGA AGT CGC AGC ATA TTG GTC	3031/1011 ATC AAA CGG AAG GTG CAA ACT GGG ATT CAA GTP TGT CAA TGA AGT CGC AGC ATA TTG GTC
I K R K V Q T G I Q V C Q * S R S I L V	I K R K V Q T G I Q V C Q * S R S I L V
S N G R C K L G F K F V N E V A A Y W S	S N G R C K L G F K F V N E V A A Y W S
Q T E G A N W D S S L S M K S Q H I G Q	Q T E G A N W D S S L S M K S Q H I G Q
3061/1021 AAG GCC CAT ATA ATC AAG TTA ATA TGA GCC GCA ACG CTA GTA TTT CCA ATA TGC CTG CCA	3091/1031 AAG GCC CAT ATA ATC AAG TTA ATA TGA GCC GCA ACG CTA GTA TTT CCA ATA TGC CTG CCA
K A H I K L I * A A T P L V F P I C L P	K A H I K L I * A A T P L V F P I C L P
R P I * S S * Y E P Q R * Y F Q Y A C H	R P I * S S * Y E P Q R * Y F Q Y A C H
G P Y N Q V N M S R N A S I S N M P A M	G P Y N Q V N M S R N A S I S N M P A M
3121/1041 TGA ATA CCG CTA GAA CAT CTC ATG AAC TTC AAT TCA CTT TGC CAT AAT ACT TTT TTT TCT	3151/1051 TGA ATA CCG CTA GAA CAT CTC ATG AAC TTC AAT TCA CTT TGC CAT AAT ACT TTT TTT TCT
* I P L E H L M N F N S L C H N T F F F S	* I P L E H L M N F N S L C H N T F F F S
E Y R * N I * * T S I H F A I I L F F F L	E Y R * N I * * T S I H F A I I L F F F L
N T A R T S D E L Q F T L P I * Y F Q Y A E I K D K R K	N T A R T S D E L Q F T L P I * Y F Q Y A E I K D K R K
3181/1061 TTC TTT TIC TTT CCT TCT TAC TGT ACA AAT ATT TTA CGC AGA AAT CAA AGA CAA AAG AAA	3211/1071 TTC TTT TIC TTT CCT TCT TAC TGT ACA AAT ATT TTA CGC AGA AAT CAA AGA CAA AAG AAA
F F S F P S Y C T N I L R R N Q R Q K K	F F S F P S Y C T N I L R R N Q R Q K K
S F L S F L T V Q I F Y A E I K D K R K	S F L S F L T V Q I F Y A E I K D K R K
L F 3241/1081 AAT AAA TAA AAA ATA AAA ATT TCA ACT AAG CAA TGA CGT CCT ACT AAA GTC CCA AAA	L F 3241/1081 AAT AAA TAA AAA ATA AAA ATT TCA ACT AAG CAA TGA CGT CCT ACT AAA GTC CCA AAA
N K K * K I K N S T K Q * R P T K V P K	N K K * K I K N S T K Q * R P T K V P K
I K N K K K * K I Q L S N D V L K S Q N	I K N K K K * K I Q L S N D V L K S Q N
* K I K N K K F N * A M T S Y * S P K I	* K I K N K K F N * A M T S Y * S P K I

FIG. 16H

33301/1101	T T T G A G C C G G A A A A A T G G T A A A G C A A A C T A T T G C C T T T A T T G T G T F F E P E K N G K A N Y C H L Y I L Y S V L S R K K N V K Q T I A I F C I I F * A G K K W * S K L L P S L Y F V F C F	3331/1111
33361/1121	T C C G A A C A C G T A T C C A A A A T C C T C C A C T G C C T T G C A G G G T T G C T C A C C A S E H V S K I L P L Q G * H C S L P P N T Y P K S S H C L C R V S I A P Y Q R T R I Q N P P T A F A G L A L P T K	3391/1131
34241/1141	A A A T G A T C T A A T T T T G A A T C G T T T G T C K * S N F F L N R F L N D L I F F * I V F F C W I * F F F E S F F V	3451/1151

FIG. 161

1/1 GTC TCT TCC ATG GAG TGA ATT GTG ATT TGT GAA TTA TAT CTC TCC ATT ACC GTP GCC TPG
 V S M E * I V I C E L Y L S N T V A L
 C L P W S E L * F V N Y I C P I P L P C
 V F H G V N C D L * I I S V Q Y R C L V
 61/21

91/31 TGG GGA GCT CAG ATA GAA AGC TCA TAA TIC CAG ACA GTC TAT TCT CIG TCT ATT TCT
 L G A Q I E K T S * F Q T V Y S L S I S
 W E L R * K R H L N S R Q S I L C L F L
 G S S D R K D I L I P D S L F S V Y F S
 121/41

151/51 CTP TGT GAC TGC AAA TTP TAA TTT GTG ACG CCT TTP CTP ATT ACT CAT GTA TTP GTC ACT
 L C D C K F * F V T P F L I T H V F V T
 F V T A N F N L * R L F L L M Y L S L
 L * L Q I L I C D A F S Y Y S C I C H S
 181/61

211/71 CTP GAC GAT TGT TTP TTT TCT ATA TTP TTT TGG TTC TGG GGT CCT CCA GAG ATT AAA AAA
 L D C F F S I F F C S G V L Q R I K N
 L T I V F F L Y F I F V L G S S R E * K I
 * R L F F Y I F V L G S S R E * K I
 241/81

271/91 TAA TGA TCA ATA TNG TAG ATA GTA TAG TTA TAT TCT TAT TCG TGG CAC CTP GTP TAA CAA
 * S I * * I V * L Y S L H L V * Q
 N D Q Y S R * Y S Y I L I R C T L F N K
 M I N I V D S I V I F L F V A P C L T N
 301/101

331/111 ATC ACT CAG ACT CAA AGA GAA TAT CGG TTP ATC TCT CTC CGA AGG TGA ACA GCA AAC
 I T Q R E Y R L V I S L R R * T A N
 S L R L K E N I G W L S E G E Q Q T
 H S D S K R I S V G Y L S P K V N S K Q
 361/121

391/131 AGT ACC TCA CGT CTP TTP TTT GAA TAG TTT TTP TIG TGG AAA CAG AAA AAC AAC TTT
 S T S R I F F E * F F L I K Q K N F
 V P H V F F L N S F F C * N R K K T F
 Y L T S F F * I V F F F V E T E K K L S

FIG. 17A

421/141	C'TP CCG TAT ATT ACA TTG TAC ATT ATT L P Y I T L Y I F I V F * P T ACG TTA GGA TTP F R I L H C T L F L Y F S F Q R * D L S V Y Y I V H Y F Y C I L V S N V R I *	
481/161	GAG CCG TCA TTA ATA TTA TTC GTT TTT GTA CGA TAT TCC AGA CGA TTT ATT TTT AGT ACA E P S L I L F V H Y S R R F I P S T S R H * Y Y S F L Y T P D L F L V H A V I N I T R F C T L F Q T I Y F * Y T	
541/181	C'TP AAA ATT CCT GTT GAT ATT GTC GAC TAG TIC TCT TTP CAT ATT TTA TTP TCG C'TP ATT L K I P V D I V H * F H I L F S L I L K F L L I L S T S S L F I F Y F R L F * N S C * Y C P L V L F S Y F I F A Y S	
601/201	C'TP TAG GTT C'TP TTA AGA GTC TCT GTT CAT TTP CCG TIC TPA CTG TTP C'TP TGT CCT CGA L * V L R V S V H F P F L L F C P R F R F F * E S L F I F R S Y C F F V L D L G S F K S L C S F S V L T V S L S S I	
661/221	TAT CTP TTA AGA AGG AGA GAA CTA AGC GCT GTA ACA TTT TTA AGT GGA CCT ACG TTA TGT Y L L R K R E L S A V T F L S G P T L C I F * E R E N * A L * H F * V D L R Y V S F K K E R T K R C N I F K W T Y V M S	
721/241	751/251	C'TP CAA AAG GTT TGA AAG AAA TCG ATG ATG TAC CAT CG TAG ACC CTG TCG TTT CAG L Q K V * K K S M M Y H Q * T L S F Q Y K R F E R R N R * C T I S R P C R F R T K G L K E E I D D V P S V D P V V S E
	691/231	

FIG. 17B

<p>781/261</p> <pre> AAA CAG TCA ATP CTC CTT TAG AGC AGT TGC AAC TAG ATG ATC CAG AGG AAA ACG CCA CCT K Q S I L * S S C N * M I Q R K T P P N S Q F C F R A V A T R * S R G K R H L T V N S A L E Q L Q L D D P E E N A T S 841/281 CTA ATG CAT TTG CGA ATA AAG TTT CTC AAG ATT CTC AAT TCG CTA ATG GCC CTC CGT CGC I H L R I K F I K I L N S L M A L R R * C I C E * S F S R F S I R * W P S V A N A F A N K V S Q D S Q F A N G P P S Q 901/301 </pre>	<p>811/271</p> <pre> AAA TGT TTC CAC ATC CAC AAA TGA TGG GTG GAA TGG GCT TCA TGC CCT ACT CTC AAA TGA K C F H I H K * W V E W A S C P T L K * N V S T S T N D G W N G L H A L L S N D M F P H P Q M M G G M G F W p Y S Q M M 961/321 </pre>	<p>931/311</p>
<pre> TGC AGG TTC CTC ATA ATC CTT GTC CAT TTT TTC CGC CCC CTG ATT TTA ATG ATC CAA CAG C R F I I L V H F F R P L I L M I Q Q A G S S * S L S I F S A P * F * * S N S Q V P H N P C P F F P P D F N D P T A 1021/341 </pre>	<p>991/331</p>	<p>1051/351</p>
<pre> CAC CAT TGA GTA GCT CGC CCT TGA ATG CAG GCG GTC CAC CAA TGT TAT TCA AGA ATG ACT H H * V A R P * M Q A V H Q C Y S R M T T I E * L A L E C R R S T N V I Q E * L P L S S S P L N A G G P P M L F K N D S 1081/361 </pre>	<p>1111/371</p>	
<pre> CAC TTC CAT TTC AAA TGC TGG CTT CGG GTG CTG CGG TAG CAA CTC AGG GTG GAC AAA ATC H F H F K C C L R V L R * Q L K V D K I T S I S N A V F G C C G S N S R W T K S I, P F Q M L S S G A A V A T Q G G Q N L 1141/381 </pre>	<p>1171/391</p>	
<pre> TAA ACC CAT TGA TAA ATG ACA ATT CAA TGA AGG TAT TGC CAA TCG CAT CGG CTG ATC CGT * T H * * M T I Q * R Y C Q S H R L I R K P I D K * Q F N E G I A N R I G * S V N P L I N D N S M K V L P I A S A D P L </pre>		

FIG. 17C

1201/401	TAT GGA CTC ATT CAA ACG TAC CAG GAT CAG CAT CGT TAG CCA TGT AGG AAA CCA CCG CTA	1231/411
Y G L I Q T Y Q D Q H L * P L K K P P L		
M D S F K R T R I S I C S H * R N H R Y		
W T H S N V P G S A S V A I E E T T A T		
1261/421		
CTC TAC AAG AAA GCC TAC CAT CTA AGG GCA GGG AGT CTA ATA AGG CTA GTT CGT TCA	1291/431	
L Y K K A Y H L R A G S L I R L V R S		
S T R K P T I * G Q G V * * * G * F V Q		
L Q E S L P S K G R E S N N K A S S F R		
1321/441		
GAA GAC AAA CTT TTC ATG CTP TAT CAC CAA CTG ACC TTA TCA ATG CGG CCA ACA ATG TAA	1351/451	
E D K L P M L Y H Q L T L S M R P T M *		
K T N F S C F I T N * P Y Q C G Q Q C N		
R Q T F H A L S P T D L I N A A N N V T		
1381/461		
CCP TGT CAA AGG ACT TCC ATT CTG ACA TGC AGA ATT TTT CTA AGG CTA AGA AAC CGT CTG	1411/471	
P C Q R T S N L T C R I F L R N R L		
L V K G L P I * H A E F F * G * E T V C		
L S K D F Q S D M Q N F S K A K P S V		
1441/481		
TAG GAG CTA ACA ATA CTG CAA AAA CCA GAA CTC ATT CCA ATT CCA ATT CTT TTG ATA ATA CTC CCT	1471/491	
* E L T I L Q K P E L N P Y L L I I L P		
R S * Q Y C K N Q N S I H I F * * Y S L		
G A N N T A K T R T Q S I S F D N T P S		
1501/501		
CCP CAA CGT CAT TTA TAC CCC CAA CCA ATA GTG TTT CTG AGA ATT TAT CCG ATT TCA AAA	1531/511	
P Q R H L Y P Q P I V F L R N Y P I S K		
L N V I Y P N Q * C F * E I I R F Q N		
S T S F I P P T N S V S E K L S D F K I		
1561/521		
TAG AAA CCT CGA AGG AGG ATT TGA TTA ATA AAA CTG CAC CAG CTA AAA ARG AGA GTC CTA	1591/531	
* K P R R R I * L I K L H Q L K R V L		
R N L E G G F D * * N C T S * K R E S Y		
E T S K E D L I N K T A P A K K E S P T		

FIG. 17D

1621/541	CRA G ^{TTT} ATG GTG CAG CAT ATC CAT ATG GGG GAC C ^{TTT} TAC T ^{TC} AAC CAA ATC CTA TTA TGC	1651/551
Q L M V Q H I H II G D L Y F N Q I L L C	N L W C S I W G T F T S T K S Y Y A	
T Y G A A Y P Y G G P L L Q P N P I M P	G H P H N I S S P I Y G I R S P F P N S	
1681/561	CAG GCC ACC CAC ATA ATA TAT CCT CCC CTA TCT ATG GTA TTA GAT CAC CTT TTC CTA ATT	1711/571
Q A T H I I Y P P L S M V L D H L F L I	R P P T * Y I L P Y L W Y * I T F S * F	
G H P H N I S S P I Y G I R S P F P N S	1741/581	
CT ^{TTT} ATG AAA TGG GCG CGC AAA TTC AAC CTT TCT CTC CGA T ^{TTT} TAA ATC CTA CGA GTC ATT	CT ^{TTT} ATG AAA TGG GCG CGC AAA TTC AAC CTT TCT CTC CGA T ^{TTT} TAA ATC CTA CGA GTC ATT	
L M K W A R N F N L S I R F * I L R V I	L * N G R A I S T F L S D F K S Y E S F	
Y E M G A Q F Q P F S P I L N P T S H S	1801/601	
CAC TAA ATG CAA ATT CTC CAA TTC TAA CCC AAT CGC CAA TTC ATC TTG CAC CAG TT ^{TT}	CAC TAA ATG CAA ATT CTC CAA TTC TAA CCC AAT CGC CAA TTC ATC TTG CAC CAG TT ^{TT}	
H * M Q I L Q F L * P N R Q F I L H Q F	P K C K F S N S S P I A N S S C T S F	
T P N A N S P I P L T Q S P I H L A P V L	L N A N S P I P L T Q S P I H L A P V L	
1861/621	TAA ACC CTA GTT CAA AT ^{TT} CTG TTG CCT TTG CAG ATA TGA AGA ATG ATG GTG GIA AGC CCA	1891/631
* T L V Q I L L P F Q I * R M M V V S P	K P * F K F C C L F R Y E E * W W * A H	
N P S S N S V A F S D M K N D G G K P T	N P S S N S V A F S D M K N D G G K P T	
1921/641	CCA CCG ATA ACG ACA AGG CGG GTC CAA ATG TTA GGA TTG ATT TAA ATC CTA ATC TTG	1951/651
P P I T R R V Q M L G W I * I L I L I	H R * R Q G G S K C * D G F N K S * S W	
T D N D K A G P N V R M D L I N P N L G	P D N D K A G P N V R M D L I N P N L G	
1981/661	GGC CTT CAA TGC AAC CTT TCC ACA TTT TAC CCC AGC AAA ACA CCC CCC CTC CTC CCT	2011/671
G H Q C N L S T Y Y L P S K T P P L L P	A I N A T F P H I T S P A K H P S S L	
P S M Q P F H I L P P Q Q N T P P P P P W	P S M Q P F H I L P P Q Q N T P P P P P W	

FIG. 17E

2041/681 GGC TTT ATA GCA CTC CAC CCT TCA ACG CAA TGG CGC CTC ATT TGT TGG TGG CTC AAA
 G F I A L H L P S T Q W F R L I C W L K
 A L * H S P S L Q R N G S A S F V G S K
 L Y S T P P F N A M V P P H L L A Q N
 2101/701 ATC ATA TGC CGT TAA TGA ATA GCG CCA ATA ATA AAC ATC ATG GTC GTA ATA ACA ATA GCA
 I I C R * * I A P I N I M V V I T I A
 S Y A V N E * R Q * * T S W S * * Q * * H
 H M P L M N S A N N K H H G R N N S M
 2161/721 TGT CAA GTC ATA ATG ACA ATG ACA TGG ATA ATT CTPA ATT ACA ACA ATA ATG ACA CAG
 C Q V I M T M T L V I L I T I K T Q
 V K S * * * Q H W * F * L Q Q * R H R
 S H N D N I G N S N Y N K D T G
 2221/741 GTC GTT CTA AGC TTG GTA AAA TGA AAA ATA TGA AAA ACA GTT ATC ATG GCT ACT ATA ATA
 V V L T L V K * K I * K T V I M A T I I
 S F * R W * N E K Y E K Q L S W L L * *
 R S N V G K M K N M K N S Y H G Y Y N N
 2281/761 ACA ATA ATA ATA ATA ATA ACA ATA ATA ATA ATA ACA GTT CGT CGG AGT CGT CGA GAT TTG CGG AGC TTT TAG
 T I I I I I I T I I I I T V M L P T A
 Q * * * * * * Q * * * * Q * C Y Q Q Q
 N N N N N N N N N N S N A T N S N
 2341/781 2311/771
 ACA CGG CGG AAA AAC AAC GTA AAA TTG AGG AGT CGT CGA GAT TTG CGG AGC TTT TAG
 T A R K N N V K L R S R R D L R T Q F *
 Q R G K T * N * G V V E I C G R S F R
 S A E K Q R K I E E S S R F A D A V L D
 2401/801 2431/811
 ACC AAT ATA TCG GAA GTA TTC ACT CAT TGT GTA ARG AAC AAC ATG GTT GTC GTP TPC TGC
 T N I S E V F T H C V K T N M V V V F C
 P I Y R K Y S L I V * R P T W L S F S A
 Q Y I G S I H S L C K D Q H G C R F L Q

FIG. 17F

2461/821	AAA AGC AGT TGG ATA TTC TCG GCA GTA AGG CGG CGG ACC GAA TTT TTG AGG AAA CTA AGG K S S W I F S A V R R R T E F L K K L R K A V G Y S R Q * G G G P N F * R N * G K Q L D I L G S K A A D R I F E E T K D	2491/831	AAA AGC AGT TGG ATA TTC TCG GCA GTA AGG CGG CGG ACC GAA TTT TTG AGG AAA CTA AGG I R I N * * L I H S V I I * S R S Y W L Y G * I D D * F I R * L F D P E A I G Y T V E L M T D S F G N Y L I Q K L L E
2521/841	ATT ATA CGG TTG AAT TGA CTG ATT CAT TCG GTA ATT TGA TCC AGA AGC TAT TGG I R I N * * L I H S V I I * S R S Y W L Y G * I D D * F I R * L F D P E A I G Y T V E L M T D S F G N Y L I Q K L L E	2551/851	ATT ATA CGG TTG AAT TGA CTG ATT CAT TCG GTA ATT TGA TCC AGA AGC TAT TGG I R I N * * L I H S V I I * S R S Y W L Y G * I D D * F I R * L F D P E A I G Y T V E L M T D S F G N Y L I Q K L L E
2581/861	AGG AGG TTA CCA CAG AAC AAA GAA TCG TAC TCA CAA AAA TAT CTT CCC CTC ATT TTG TCG K R L P Q N K E S Y S Q K Y L P I L S R G Y H R T K N R T H K N I F P S F C R E V T T E Q R I V L T K I S S P H F V V E	2611/871	AGG AGG TTA CCA CAG AAC AAA GAA TCG TAC TCA CAA AAA TAT CTT CCC CTC ATT TTG TCG K R L P Q N K E S Y S Q K Y L P I L S R G Y H R T K N R T H K N I F P S F C R E V T T E Q R I V L T K I S S P H F V V E
2641/881	AAA TTT CCT TAA ACC CTC ATG GTA CTA GGG CAT TAC AAA AAC TCA TTG ATT GCA TCA AAA K F P * T L M V L G H Y K N S L N A S K N F L K P S W Y * G I T K T H Q N I S L N P H G T R A L Q K L I E C I K T	2671/891	AAA TTT CCT TAA ACC CTC ATG GTA CTA GGG CAT TAC AAA AAC TCA TTG ATT GCA TCA AAA K F P * T L M V L G H Y K N S L N A S K N F L K P S W Y * G I T K T H Q N I S L N P H G T R A L Q K L I E C I K T
2701/901	CAG ATG AAG CAC AGA TTG TTG ATT CTP TAC GCC CTP ATA CTG TCC AGT TGA GTA Q M K H R L L I L Y A L I L S S * V R * R S T D C C * F F T P L Y C P V E * V D E E A Q I V V D S L R P Y T V Q L S K D E E A Q I V V D S L R P Y T V Q L S K	2731/911	CAG ATG AAG CAC AGA TTG TTG ATT CTP TAC GCC CTP ATA CTG TCC AGT TGA GTA Q M K H R L L I L Y A L I L S S * V R * R S T D C C * F F T P L Y C P V E * V D E E A Q I V V D S L R P Y T V Q L S K D E E A Q I V V D S L R P Y T V Q L S K
2761/921	AGG ATT TAA ATG GTA ATC ATG TTA TTG AAA ATT GTT TGC AAA GGT TGA AGC CTG AAA ACT R I * B V I M L F K N V C K G * S L K T G F K W * S C Y S K H F A K V E A * K L D L N G N H V I Q K C L Q R L K P E N F	2791/931	AGG ATT TAA ATG GTA ATC ATG TTA TTG AAA ATT GTT TGC AAA GGT TGA AGC CTG AAA ACT R I * B V I M L F K N V C K G * S L K T G F K W * S C Y S K H F A K V E A * K L D L N G N H V I Q K C L Q R L K P E N F
2821/941	TCC AGT TTA TCT TTG ACG CAA TCT CTG ATA TGT GCA TCT ATA TTG CTA CTC ATA GAC ACG S L S L T Q S L I A V L I L L I D T P V Y L * R N L * L Y * Y C Y S * T P R Q F I F D A I S D S C I D I A T H R H G	2851/951	TCC AGT TTA TCT TTG ACG CAA TCT CTG ATA TGT GCA TCT ATA TTG CTA CTC ATA GAC ACG S L S L T Q S L I A V L I L L I D T P V Y L * R N L * L Y * Y C Y S * T P R Q F I F D A I S D S C I D I A T H R H G

FIG. 17G

2881/961	GGT GTT GCG TTT TGC AAC GTT GTC TAG ATC ATG GGA CTA CAG AAC AAT GTG ACA ATC TGT G V A F C N V V * I M G L Q N N V T I C V L R F A T I S R S W D Y R T M * Q S V C C V I, Q R C L D H G T T E Q C D N L C
2941/981	TGG ATA AGT TGC TAG CCC TTG TTG ATA AAT TAA CTT TGCG ATC CAT TTG GCA ACT ATG TGG V I S C * P L I N * L W T H L A T M W * * V A S P C * * I N F G S I W Q L C G D K L I A L V D K L T L D P F G N Y V V 3001/1001
2971/991	TGG ATA TAA TTA CCA AAG AGG CTG AGA AGA ACA AAT ATG ATT ATA CGG ATA AAA TTG C N I * L P K R L R T N M I I R I K L A I Y N Y Q R G * E E Q I * L Y A * N C Q Y I I T K E A E K N K Y D Y T H K I V 3061/1021
3031/1031	TCC ACC TGT TGA AAC CAA GAG CCA TCG AAC TTT CTA TCC ATA AAT TTG GAT CAA ATG TGA S T C * N Q E P S N F L S I N L D Q M * P P V E T K S H R T F Y P * I W I K C D H L L K P R A I E L S I H K F G S N V I 3121/1041
3091/1031	TGG AAA TCT TGA AGA CAG CTA TTG TTT CGG AGC CAA TGA TTC TGG AAA TTT TAA ATA I, K K S * R Q L L F R S Q * F W K F * I * K N L E D S Y C F G A N D' S G N F K * E K I L R T A I V S E P M I L E I L N N 3151/1051
3211/1071	TGG AAA TCT TGA AGA CAG CTA TTG TTT CGG AGC CAA TGA TTC TGG AAA TTT TAA ATA I, K K S * R Q L L F R S Q * F W K F * I * K N L E D S Y C F G A N D' S G N F K * E K I L R T A I V S E P M I L E I L N N 3181/1061
3241/1081	ATG GTG GCG AGA CGG GTA TTC AAT CAT TGT TGA ATG ATA GCT ACG GAA ATT ACG TTT TRAC M V A R R V F N H C * M I A T E I T F Y Q R W W R D G Y S I I V E * * L R K L R F T G G E T G I Q S L L N D S Y G N Y V L Q 3271/1091
2911/971	AGA CAG CAT TGT ACA TTT CTC ATA AGC RAA ATG ACT TCT ATA AAA GAC TAT CAG AGG R Q H * T F L I S K M T I S K D' Y Q R D S I R H F S * A K * L S L * K T I R D T A V D I S H K O N D Y L Y K R L S E

EIG. 17H

3301/1101 TGG CGC CTT TAC TGG GCC CCA TAA GAA ATA CGC CTC ATG GTA AAA GAA TCA TCG L W R L Y W W A P * E I H L M V K E S S C G A F T G G P H K K Y T S W * K N H R V A P I, I, V G P I R N T P H G K R I I G	3331/1111 GAA TGT TAC ATT TAG ATP CAP AGT TGA TAC ATA TAT CCT CAG TTT AGC TTT TTT TAC GTP E C Y I * I H S * Y I Y P Q F S F F Y V N V T F R F I V D T Y I L S L A F F T I M L H L D S * L I H I S S V * L F L R *
3361/1121 3391/1131 GAA TGT TAC ATT TAG ATP CAP AGT TGA TAC ATA TAT CCT CAG TTT AGC TTT TTT TAC GTP E C Y I * I H S * Y I Y P Q F S F F Y V N V T F R F I V D T Y I L S L A F F T I M L H L D S * L I H I S S V * L F L R *	3451/1151 3421/1141 AGC CTC ATA TAA TAT CTT TGT TAC ATT ACT AAA ATA CAT CAT TTT TTT CGT TGA GCG S L I * Y L L Y N T K I H H F F F R * G A S Y N I F C T I L K Y I I F F F V E D P H I I S F V Q Y * N T S F F F S L R I
3481/1161 TCA RAT GAA TAT CCA AGG CAA AAA AAA TAG GAA TTT TCA CTT TAT GGT ATA CTG GTA ATT S N E Y P K Q K K * E F S L Y G I L V N Q M N I Q S K K N R N F H F M V Y W * I K * I S K A K K I G I F T L W Y T G K *	3511/1171 3541/1181 3571/1191 TCA RAT GAA GAA ATA AGA GAA CGA GAT CGC CCT AGA AAA CAG AAT GTT CTT ATT ATT ATA S V E E I R E G D R P R K Q N V L I * I V L K K * E K E I A L E N R M F L F K * C * R N K R R S P * K T E C S Y I, N K
3601/1201 3631/1211 AGT GTT GAA GAA AGA AAA AAA GGA AGG MAG TTT TTG AGA ACT TTT ATC TAT ACA AAC S K L K R K K G R K F L R T F I Y T N V N S K E K K R E G S F * E L, I, S I Q T * T Q K K R K E V F E N F Y L, Y K R	3661/1221 3691/1231 GTA TAC GTT TAA CTA TCT GGA TAA AGG ATA CTG TGG AGG TCC TCA AGA V Y V * I, S G * T S L H R I L, * R S S R Y T F N Y L D K R R S T G Y C' R G P Q D I R L T I W I N V A P Q D T V E V L K I

1/1	qaa	aat	cgg	ggg	gct	gaa	atc	cat	ctt	cat	cot	acc	gct	ccc	gtg	ttg	gtg	gaa	tga	31/11
E	D	R	G	A	E	I	H	I,	H	P	T	A	P	P	V	I,	V	E	*	
K	I	G	G	L	K	S	I	F	I	L	P	I,	R	P	C	W	W	N	E	
R	S	G	G	*	N	P	S	S	S	Y	R	S	A	R	V	G	G	M	S	

61/21	qcg	ttg	cat	gtg	tct	tga	aga	gaa	aat	cgg	cag	ctg	ttt	ggc	agg	act	ctt	tca	gcc	ccc	acc	91/31
A	L	V	S	*	R	E	K	Q	L	P	C	F	G	R	T	L	S	A	P	T		
R	C	M	C	L	E	E	K	S	S	A	L	A	G	L	F	Q	P	P	P	P		
V	A	C	V	L	K	R	K	A	V	L	W	Q	D	S	F	S	P	H	L			

121/41	tga	aac	ata	acc	ctc	aag	aac	cag	cta	atc	cca	aca	aca	tgc	ctg	ttg	ttt	tga	cat	ctg	gaa	151/51
*	N	I	T	L	K	N	Q	L	I	P	T	C	L	L	F	*	H	L	E			
E	T	S	P	S	R	T	S	*	S	Q	H	A	C	C	F	D	T	W	N			
K	H	W	P	Q	E	P	A	N	P	N	M	P	V	V	L	T	S	G	T			

181/61	cag	ggg	cyc	bag	cgc	aqc	cac	aac	cag	cgt	cag	ctg	caa	atc	agg	ctc	ttg	cag	ctg	gga	ctc	act	211/71
Q	G	R	K	R	S	H	N	Q	L	Q	I	R	L	Q	L	G	I,	T					
R	V	A	S	A	A	T	T	S	C	K	S	G	S	C	S	W	D	S	I,				
G	S	Q	A	Q	P	Q	P	A	A	N	Q	A	L	A	A	G	T	H	S				

241/81	cca	ggc	ctg	tcc	cag	gtt	cgt	tag	gag	ttg	cag	ttg	gtt	ccc	agg	acg	acg	cta	tgg	tgg	271/91
P	A	L	S	Q	D	L	*	E	L	Q	A	V	P	R	T	T	L	W	W		
Q	P	C	P	R	I	Y	R	S	C	R	P	F	P	G	R	R	Y	G	G		
S	P	V	P	G	S	I	G	V	A	G	R	S	Q	D	D	A	M	V	D		

301/101	act	act	tct	tcc	aga	ggc	agc	atg	gtg	agc	ttg	ggg	gag	gaa	ttg	gtg	gag	gag	gag	gag	331/111
T	T	S	F	R	G	S	M	V	S	I,	G	I,	G	E	E	V	E	E	A		
L	L	S	E	A	A	W	*	A	A	W	G	R	R	K	W	R	R	R	R		
Y	F	F	Q	R	Q	H	G	E	Q	L	G	G	G	G	S	G	G	G	G		

361/121	gct	ata	ata	ata	ata	gca	aac	ata	atc	gat	ggc	cta	ctg	ggg	ata	ata	ttc	atg	cag	aac	atc	agg	391/131
A	I	I	*	*	*	A	N	I	D	G	L	L	G	I	F	M	Q	N	I	R			
L	*	*	*	*	*	Q	T	S	M	A	Y	W	G	*	H	S	C	R	T	S	G		
Y	H	H	S	K	H	R	W	P	T	G	D	N	I	H	A	E	H	Q	V				

FIG. 18A

421/141	tgc gtt cca tgg atg aac tga atc atg att ttc aag cac ttg ctc tgg egg gaa gag cga	
C V P W M N *	I M I F K H L W R E E R	
A F H G *	T E S *	F S S T C S G G K S D
R S M D E L N H D F Q A L A L E G R A M		
481/161		
451/151	tgg gag agc agc tct tgc cag gta aaa agt ttt ggg aaa cag atg aat cca gca aag atg	
W E S S C Q V K S F G K Q M N P A K M		
G R A A L A R *	K V L G N R *	I Q Q R R W
G E Q L L P G K K F W E T D H S S K D G		
541/181		571/191
qac caa aag gaa tat tcc tgg gtg atc aat ggc gag aca gta gct ggg gaa cat cag atc		
D Q K E Y S W V I N G E T V P G E H Q I		
T K R N I P G *	S M A R Q C L G N I R S	
P K G I F L G D Q W R D S A W G T S D H		
601/201		631/211
att cag ttt ccc aqc caa tca tgg tgc aqa gaa gac ctc gta aqa gtt tcc atg tga aca		
I Q F P S Q S W C R E D L V R S M * T		
F S F P A N H G A E K T W S E F P C E Q		
S V S Q P I M V Q R R P G Q S F H V N S		
661/221		691/231
gtg egg tca att ctg tac tgt ccc cac gat egg aga gta ggg gac tag gcg tta gca tgg		
V R S I L Y C P H D R R V G D * A L A W		
* G Q F C T V P T I G E W G T R R * H G		
E V N S V L S P R S E S G G L G V S M V		
721/241		751/251
tgg agt atg tgt tga gct cat ccc egg ggc att cct gtc taa gaa aag gag gat ttg gcc		
W S M C *	A H P R A I P V * E K E D L A	
G V C V E L I P G R F L S K K R R I W P		
E Y V L S S P G D S C L R K G G F G P		

FIG. 18B

781/261	caa ggg atg cag acc gta atg aaa acg aca aag gtt aac aca aca egg gta cgt ttg Q G M Q T V M K T K V K R R T R V R L K C C R Q * * K R Q R * K E E Q G Y V V * R D A D S D E N D K G E K K N K G T F D 841/281	811/271 atg gag ata agc tag gag att tga egg egg gtt atg tga tgg aca aca aca atg gtt M E I S * E I * R R R V M * W T R P M V W R * A R R F E G G G * C D G Q D Q W F G D K L G D L K E E G D V M D K T N G L 901/301	871/291 tac cag tgc aca atg gga tgg atg cag acg tca aag att tta gca gta ccc ctg gta att Y Q C R M G L M Q T S K I L A V P L V I T S A E W D * C R R Q R F * P Y P W * L P V Q N G I D A D V K D F S R T P G N C 961/321	931/311 gcc aca act ctg cta atg aag tgg atc ttc tgg gtc caa acc aca atg gtt ctg agg gct A R T L M K W I F W V Q T R M V L R A P E L C * * S G S G S K P E W F * G L Q N S A N E V D L L G P N Q N G S E G L 1021/341	991/331 tag ccc acc tga cca gca cca atg gtt gca acc atg gtt ctg tgg egg att tct cca aca tgg agt * P S * P A P M V P S L W R I S P T W S S P A D Q H Q W C Q A C G G F L Q H G V A Q L T S T N G A K P V E D F S N M E S 1081/361	1051/351 1111/371 ccc aca gtt tcc cct tgg acc cca tgg aac atg tgg gca tgg egg ctc ttc agt tgg att P R V S P W T P W N H W A W S L F S L I P E C P L G P H G T C G H G A S S V * L Q S V P L D P M E H V G M E P L Q F D Y 1141/381	1171/391 att cag gca cgc agg tac ctg act cag cag caa ctg tgg gac ttt ttg act aca I Q A R R Y L W T Q Q Q L W D F L T T F R H A G T C G I S S N C G T F F * L Q S G T Q V P V D S A A A T V G L F D Y N
---------	---	--	--	---	---	--	--

1201/401 att ctc aac aac agc tgt tcc aaa gag cta atg cgc ttg ctg tcc agg tga cag ctg I I N N S C S K D L M R L L S S * Q L F S T T A V P K T * C A C C P A V D S C S Q Q Q L F Q R P N A L A V Q Q L T A A 1261/421 ctc agc agc agt atg cac tgg cag ctg ctc atc agc cgc aca tcc gtt tag ctc ccg L S S M H W Q L L I S R T S V * L P S A A V C T G S C S A A H R F S S R Q Q Q Y A L A H Q P H I G L A P A 1291/431 1321/441 ctc cgt ttg tcc cca atc cat aca tca tca qcg ctg ctc ccc cag gga cgg acc cct aca L R L S P I H T S A L L P Q G R T P T C V C P Q S I H H Q R C S P R D G P L H A F V P N P Y I I S A A P P G T D P Y T 1351/451 1381/461 1411/471 1441/481 1471/491 1501/501 1531/511 1561/521 1591/531

ctg cgt ttg tcc cca atc cat aca tca tca qcg ctg ctc ccc cag gga cgg acc cct aca L R L S P I H T S A L L P Q G R T P T C V C P Q S I H H Q R C S P R D G P L H A F V P N P Y I I S A A P P G T D P Y T 1411/471 cag ctg gat ttg cag cag cga cac tag gcc cag cag ctg tgg tcc cta acc agt att atg Q L D W L Q Q R H * A Q L W S L T S I M S W I G C S D T R P S C G P S P V L W A G L A A A T L G P A V V P H Q Y Y G 1471/491 cag ttg ctc cct ggg gag tct acc ctg cca gtc ttt tcc agg aag ctg ccg ctg ccg E L L P G E S T L P V F S S K L P L P S V S L G S L P C Q S F P A A S C R C R S V T P W G V Y P A S L F Q Q A A A A A A A 1531/511 ctg cag caa cta att cag cta atc aac aca cca ccc cac agg ctc agc aag gac agc L Q Q L I Q L N R P P H P T G S A R T A A A A A A A C S N * F S * S T D H P T P Q A Q Q G Q Q Q Q R F S V E E P A N V L * P Q T R T S R D G S P W R S Q P T D P K P E P A G T V L R G G A S Q R P L T P N Q N Q N Q G Q Q

FIG. 18D

1621/541	ggc aaa cgg atc ccc ttt ggg cag ctg cag cag tga att ctg ccc ttt gag aag S K R I P L W Q L Q * I L P L H L D K	1651/551	
1681/561	A N G S P C G S C S E F C P C I W T R Q T D .P L V A A V N S A L A F G Q G	1711/571	
1741/581	V W Q Q A C Q V I R C W L L G S C L L * P N S G S R H A R L S G V P V L A P A Y D Q T L A A G M P G Y P V L A P A Y D Q T	1771/591	
1801/601	L V P L * * M Q A R E N V L E K W S W S C S T C W C P C S E C R R E K W S W S C S T C G A L V V N A G A R N G L G A P V R L V	1831/611	
1861/621	* L L P Q S L S H H * F L S C T S C S S R S S C P S H H * F L S C T S C S S R A P A. P V I I S S S A A Q A V A A V A A A	1891/631	
1921/641	tag ctc ctg ccc cag tca tta gtt ctt cag ctg ccc aag ctt ctt ctt ctt * L L P Q S L S H H * F L S C T S C S S R S S C P S H H * F L S C T S C S S R A P A. P V I I S S S A A Q A V A A V A A A	1891/631	
1981/661	ctt tag gaa cac agg agc ctc agg ccc agg ccc agg ccc agg ccc agg ccc agg * E H S S T A T T L S P S P S P I T W H H F R N T Q Q P Q P Q P Q P Q P N N L A S L G T Q Q P Q P Q P Q P Q P N N L A S	2011/671	

FIG. 18E

2041/681	ccc agg gct ctg ccc agc ctg cca aca cat cct tgg gat tcg gaa gta gca gtt ctc tcc P R A L P S I P T H I L G I R K * Q F S R	2071/691	tgg gat cca ccc tgg gat ccg ccc ttg gag ggt ttg gaa cag cag ttg caa act cca aca cta P P W D P I E G L E Q L Q T P T L
2101/701	Q G S A Q P A N T S L G F G S S S L G R H P G I R P W R V W N S S C K L Q H W	2131/711	A T L G S A L G G F G T A V A N S N T G R II P G I R P W R V W N S S C K L Q H W
2161/721	Y G C G T G C C G C C G T G A C T C C C T G G C A G C A G T G A C T C C T G G C A G T G A C T C C T G A V A P A V T P * L A A V T F I R G H R Q W L P P * L P D W Q Q * P L * E D I E S G R R D S L T G S S D L Y K R T S S 2221/741	2191/731	Q C G T G C C G C C G T G A C T C C C T G G C A G C A G T G A C T C C T G G C A G T G A C T C C T G A V A P A V T P * L A A V T F I R G H R Q L D P H W T Q F L * R P * L F L L S W S L T P I G H S F Y N G L S F S S P G 2281/761
2341/781	2231/771	2251/751	2311/791
2401/801	2431/811	2461/821	2491/831

FIG. 18F

2491/821
 gcca gcc tct tca gca gca cga ctc ttt tct ctt ctc gtt tgc gat atg gaa tgt
 P A S S A R A L F S L P L V C D M E C
 Q P L Q P E Q H S F L F S R L R Y G M S
 S I, F S P S T L F S S R L R Y G M S
 2521/841
 atg tca tgg ott ctg gca gga gca gga tgg aag att ttc gaa aca acc ggt acc
 M S C L, A G F W Q E Q A F G R F S K Q P V P
 * C H A F W Q E Q A F G R F S K Q P V P
 D V M P S G R S R L L E D F R N N R Y P
 2581/861
 cccaa att tac aac tgc ggg aga ttg ctg gac ata taa ttg aat ttt ccc aag acc agc atg
 P I Y N C G R L D I * W N F P K T S M
 Q F T T A G D C W T Y N G I F P R P A W
 N L Q L R E I A G H I M E F S Q D Q H G
 2641/881
 ggggt cca gat tca ttc agt tga aac tgg agc gtc cca cac cag ctg egc gcc agc ttg tat
 G P D S F S * N W S V P H Q L S A S L S
 V Q I H S A E T G A C H T S * A P A C L
 S R F I Q L K L E R A T P A E R Q L V F
 2701/901
 atc aat tcc tcc agg ctg cct acc aac tca ttg ttg ttg ttg gta att agc tca
 S M K S S R L P T N S W W M C L V I T S
 Q * N P P G C L P T H G G C V W * L R H
 N E I L Q A A Y Q L M V D V F G N Y V I
 2761/921
 ttcc aga agt tct ttg aat ttg gca gtc ttg aac agt ttg ctt ttg cag aac gga ttca
 R S S L N R S W L N R S W L W Q N G F
 S E V L * I W Q S * T E A G F G R T D S
 Q K F F E F G S L E Q K L A L A E R I R
 28021/941
 gag gcc acq tcc tgt cat ttg cac tac aga tgt atg gct gcc qtg tta tcc aga aag ctc
 E A T S C H W H Y R C M A A V L S R K L
 R P R P V I G T D V W L P C Y P E S S
 G H V I S L A L Q M Y G C B V I O K A L

FIG. 18G

2081/961	ttg agt tta ttc ctt cag acc agc aga atg aat ggg aac tag atg gcc atg tct L S I F L Q T S R M R W F G N * M A M S * V Y S F R P A E * D G S G T R W P C L E F I P S D Q Q N E M V R E L D G H V L	
2941/981	tga ayt gtg tga aag atc aga atg qca atc acg tgg ttc aga aat gca ttg aat gtg tac * S V * K I R M A I T W F R N A L N V Y E V C E R S E W Q S R G S E M H * M C T K C V K D Q N G N H V V Q K C I E C V Q	
2911/971	3001/1001	3031/1011
3061/1021	agc ccc agt ctt tgc aat tta tca tog atg cgt tta egg gac egg tat ttq cct tat cca S P S L C N L S M R L R D R Y L P Y P A P V F A I Y H R C V * G T G I C L I H P Q S L Q F I I D A F K G Q V F A L S T	
3181/1061	3091/1031	3121/1041
3241/1081	cac atc ctt atg gct gca gag tga tta aya gaa tcc tgg ayc act gtc tcc ctg acc aga H I L M A E * F R E S W S T V S L T P R T S L W L P S D S E N P G A L S P * P D H P Y G C R V I Q R I L E H C L P D Q T	
3271/1091	3151/1051	3211/1071
3291/1091	cac tcc cta ttt tag ayc acc acc aca gag ayc act gtc tcc tgg ayc act gtc tcc ctg acc aga H S I F * R S F T S T Q S S L Y R I N M T P Y F R G A S P A H R A A C T G S I W I, P I L E E L H Q H T E Q L V Q D Q Y G	
3311/1101	3271/1091	3291/1091
3331/1101	gaa att atg taa tcc aac atg taa tgg ayc act gtc tcc tgg aya gca aea ttg E I M * S N H Y W S T V V L R I K A K L K L C N P T C T G A R S S * G * K Q N C N Y V I Q H V L E H G R P E D K S K I V	
3351/1101	3371/1101	3391/1101
3411/1101	tag cag aaa tcc gag gca atg tac ttg tat tga gtc ayc aca aat ttg caa gca atg ttg * Q K S E A M Y L Y * V S T N L Q A M L S R N P R Q C T C I E S A Q I C K Q C C A E I R G N V L V L S Q H K F A S N V V	

3301/1101 tgg aga agt gtg tta ctc acg cct cac gta egg acg gcg ctg tgc tca tcg atg agt agg tgt
W R S V L I T P H V R S A L C S S M R C
G E V C Y S R L T Y G A R C A H R * G V
E K C V T H A S R T E R A V L I D E V C
3361/1121 gca cca tga acc acg gtc ccc acc gtg cct tat aca coa tga egg acc agt atg cca
A P * T T V P T V P Y T P * * R T S M P
H H E R R S P Q C L I H D E G P V C Q
T M N D G P H S A L Y T M M K D Q Y A N
3421/1141 act acg tgg tcc aga aga tga ttg acg tgg cgg acg cag gcc ago gga aga tcg tca tgc
T T W S R R * L T W R S Q A S G R S S C
I R G P E D D * R G G A R P A E D R H A
Y V V Q K M I D V A E P G Q R K I V M H
3481/1161 ata aga tcc ggc ccc acc tcg caa ctc ttg gta agt aca cct atg gca aga aca ttg tgg
I R S G P T S Q L F V S T P M A S T F W
* D P A P H R N S S * V H L W Q A H S G
K I R P H I A T L R K Y T Y G K H I L A
3541/1181 cca agc tgg aga agt act aca tga aga acg gtt act tag ggc cca tct qtg gcc ccc
P S W R S T T * R T V L T * G P S V A P
Q A G E V L H E E R C * L R A H L W P P
K L E K Y Y M K N G V D L G P I C G P P
3601/1201 cta atg gta tca tct gag gca gtg tca ccc gat gtt ccc tca ttc cgg ctg acc tca ctg
I H V S S E A V S P A V P S F P I T S L
* W Y H L R Q C H P L F P H S R * P H W
N G I I * G S V T R C S L I P A D L T G
3661/1221 gcc cac tgg caa atc caa cca gca acc aga aat gtt cta gtg tag atg ctg aga cggt gca
A H W Q I Q P A T R N V L * S L R R A
P T G K S N Q Q P E M F * C R V * D G Q
P L A N P T S N Q K C S V E S E T G K

3721/1241	agt ggt tgc tcc egg att act ccc tcc tgg aaa gga atc aca tcc acc agt gga aaa S G C S R I T P S S K K G I K S T S G K V V A P G L N L P P K K E S N P R V E K W L L Q D Y S L L Q K R N Q I H E W K S	3751/1251	3811/1271	3841/1281
3781/1261	gcc ttt gta aat tta tta cac ata aca tgt act att ttt ttt att tga cta att A F V N L I L H L P * H V L F F L I D * L P L * I * F Y Y T * H V L F F L I D * L L C K F N F I T H N M Y Y F F * L T N C	3871/1291	3931/1301	3961/1321
3841/1291	gcc ctg ctg ttt tac tgg tgg att gga tao tao att gga tao ttt ggt aac caa tgt aca tgg gag A L L F Y W C I G Y L Y I G N Q C T W E P C C F T G V * D T C T * V T N V H G R P A V L L V Y R I L V H R * P M Y M G G 3931/1301	3971/1311	3991/1331	4051/1351
3931/1301	gcc aca tat ttt gtt cac tgt tgt ato tat att tca cat gtg gaa act ttc agg gtg gtt A T Y F V H C C I Y I S H V E T F R V V P H I L F T V V S I F H M W K L S G W L H I F C S L L Y L Y F T C G N F Q G G W 3961/1321	3991/1331	4051/1351	4111/1371
3961/1321	gggt tta aca aaa aaa agc ttt aaa aaa aga aaa aaa ggt ttt tag ttt tag taa aaa G L T K K S F K K K K E K R K R F L A H V * Q K K K A L K K K E K V F S S S F N K K K K L * K K K R K R F L A H 4021/1341	4051/1351	4081/1361	4111/1371
4021/1341	att tgc ctg gcc ggg aag ttt tgc aaa tag ctc ttc ccc acc tcc tca ttt tag taa aaa I C L A G K F C K * L F P T S S F * * K F A W P A S F A N S S P P H F S K K I, P G R Q V L, Q I A L P H I, L I L V K N 4081/1361	4051/1351	4111/1371	4111/1371
4081/1361	aca aac aaa aac aaa acc tga gaa gtt tga att gta att gta gtt aaa tga bcc caa act ggc T N K N K K T * E V * I V K * P Q T G Q T K T K K P E K F E L * L N D P K L A K O K O K N L R S L N C S * M T P N W H	4111/1371	4111/1371	4111/1371

FIG. 18J

FIG. 18K

4561/1521 4591/1531

ttt tga ttg tac atat tgt acat ttt gta tac ctgt taa tgt aaa ttt gga gaa gtt tga atc
 F * L Y N C T V F V Y I L * C K C G E V * I
 F D C T R I V H L Y T C N V N V E K F E S
 L I V Q L Y I C I P V M * M W R S L N Q

4621/1541 4651/1551

aac ata aac acy ttt ttt ggt aag aaa aga gaa tta gco aqc cct gtg cat tca gtg tat
 N I N T F F G K R S I * P A L C I Q C I
 T * T R F I V R K E N * P A L C I Q C I
 H K H V F W * E K R I S Q P C A F S V Y

4681/1561 4711/1571

att ctc acc ttt tat ggt cgt agc ata tag tgt ata ttg taa att gta att tca att tca acc
 I L T F Y G R S I * C C I L * I V I S T
 F S P F M V V A Y S V V Y C K L * F Q P
 S H L L W S * H I V L Y I V N C N F N Q

4741/1581 4771/1591

aga agt aea ttt tgt ttt gaa gga ata aat gtt ctt tat aca gcc tag tta atg ttt
 R S K F F C F E G I N V L Y T A * L M F
 E V N F F V L K E * M F F I Q P S * C L
 K * I F L F * R N K C S L Y S L V N V *

4801/1601 4831/1611

aaa aag aea aea ata gct tgg ttt tat ttg tca tat agt ctc aag tat agc gag att ctt
 K K K K I A W F Y L S S L K Y S E I L
 K R K K * L G F I C H L V S S I A R F F
 K E K N S L V L F V I * S Q V * R D S F

4861/1621 4891/1631

tct aaa tgt tat tca aga ttg agt tct cac tag tgt ttt aat cct aaa aaa gta atg
 S K C Y S R I S H * C F F N P K K V M
 L N V I Q D * V L T S V F L I L K K * C
 * M L F K I E F S L V F F * S * K S N V

4921/1641 4951/1651

ttt tga ttg tgt gac agt caa aag gac gtt caa aag tct agc ctt gcc cgt gct ttg ctt
 F * F C D S Q K D V Q K S S L A R A F L
 F D F V T V K R T C K S L A L P E L S L
 L I L * Q S K G R A K V * P C P S F P Y

FIG. 18L

4981/1661	aca atc aga gcc cct ctc acc ttg taa agt gtc aat ctt tcc ctt tac aga aga	T I R A P L T L * S V N R P S L L Y R R
Q S E P L S P C K V * I A L P F C T E D	N Q S P S H L V K C E S P F P F V Q K M	
5041/1681	tgt act gta ttt tgc att ttg tct act	* T V F C I L S T C K * M * H T V N F P
E L Y F A F C L L V * V N V T Y C Q F L	N C I L H F V Y L * V N V T Y C Q F S L	
5101/1701	tgt ttg aat ata gaa ttg taa cac tac	C L N I E L * H Y T V I S R A L C I F
acc gca ttg ctc ttt gta acc ctt gta acc ata tgt	V * I * N G N T T R C T F P E P C V Y I S	
5161/1721	ccatg aac ttg ctc ttt gca ago aca ctt gta acc ata tgt	F E Y R I V T L H G V H F Q S L V Y I S
5221/1741	atg ctt atg cct ggg cca cta ttt gta act ctt gtc tag att gtc tct aaa caa tgt	P H N F A S T L V * L C V * L T N L C
M L M P G Q L F V T L V * I V S K Q C	C L C L G N Y F L * L L C R L S L N N V	
A Y A W A T I F C N S C V D C L * T M C	D L Y F E K Y R T L E S	
5281/1761	gttg atc ttt att ttg aat aca gaa ctt tgg aat ctg	V I F I L F * K N T E L W N L
*	S L L F E K Y R T L E S	
5011/1671	5071/1691	5131/1711
5191/1731	5251/1751	5311/1771

FIG. 18M

1/1	CGA AGT TAA AGG GAA AAA GCA ATP CAC AGG AAA GAG TAC AAA GAC ACC ACA AGA AAA AAA	31/11	
C S *	R F K A I H R K E Y K D S T R K K K		
R V K G K Q F T G K S T K T A Q E K K N			
K I, K C K S N S Q E R V Q R Q H K K K N			
61/21			
CAG ATT TCA TAA AAA TAG TGA TTC TGG TCC TGC TMC TTC AAA GAC ATT TCC AAC AAG GAA AGT TGC			
Q I S *	K * F W F K D I S N K E S C		
R P H K N S D S G S K T P T R K V A			
D Y I K I V L V I L Q R H P Q Q G K L L			
121/41			
TAA AGA AGG TGG ACC TAA AGT CAC ATC TAG GAA CTP TGA GAA AAG TAT CAC AAA ACT TGG			
* R R W T * S H I * E L * E K Y H K T W			
K F C G P K V T S R N F E K S I T K L G			
K V D L K S H L G T L R K V S Q N L G			
161/61			
GAA AAA GGG TGT AAA GCA GTP CAA GAA TAA GCA GCA AGG GGA CAA ATC ACC AAA GAA CAA			
E K G C K A V Q E * A A R G Q I T K E Q			
K G V K Q F K N K Q D K S P K N K			
K R V * S S S R I S S K G T H Q R T N			
241/81			
ATP CCA CCC GGC AAA TAA ATP CAA CAA GAA GAG AAA ATP CCA GCC AGA TCG TAG AAG CGA			
I P A G K *, I Q E K I P A R W * K R			
P Q P A N K F N K R K F Q P D G R S D			
S S R Q I H S T R R E N S S Q H V F A M			
271/91			

91/31

151/51

211/71

FIG. 19A

301/101	TGA ATC AGC AGG CAA GAA GCC CAA TGT CGA TGA CTT CAA AAA GAA GAA AGA ACT GAA
A I S S Q E A Q K P K W D D F K K K K E R T E	
E S A A K K N G H T S P N G W P S K R R K N * S	
H Q Q P R S P R S P N G W T S K R R K N * S	
361/121	
GCA AAG CAG AGA ACT CGG TGA TAA AAC CAA CTP TGA CRT TGT TGT TCG GGC AAA GCA GAT	
A K Q T Q * N Q L Y D I V V R A K Q D	
Q S R Q L S D K T N Y D I V V R A K Q D	
K A D H S V I K P T M T L L F G Q S R C	
421/141	
GTG CGA GAT GTP GAG MAG RAA AGA CTT TGA CAA AGA AAA AGG AGT AAA GTP ATT GAG TGA	
V G D F K K R L * Q R K S K V N E *	
W E I L R R K D C D K E K R V K L M S D	
G R F * E E K T V T K K E * S * V I	
481/161	
TTP GCA GAA GTP GAT TCA AGG GAA ATT TAA AAC TAT TGC ATT TGC ACA CGA TTC AAC TCG	
F A E V D S R E N * N Y C I C T R F N S	
L Q K L I Q G K I K T I A F A H D S T R	
C R S * F K G K L K L H T I Q L V	
331/111	
GCA AAG CAG AGA ACT CGG TGA TAA AAC CAA CTP TGA CRT TGT TGT TCG GGC AAA GCA GAT	
A K Q T Q * N Q L Y D I V V R A K Q D	
Q S R Q L S D K T N Y D I V V R A K Q D	
K A D H S V I K P T M T L L F G Q S R C	
391/131	
GCA AAG CAG AGA ACT CGG TGA TAA AAC CAA CTP TGA CRT TGT TGT TCG GGC AAA GCA GAT	
A K Q T Q * N Q L Y D I V V R A K Q D	
Q S R Q L S D K T N Y D I V V R A K Q D	
K A D H S V I K P T M T L L F G Q S R C	
451/151	
GCA AAG CAG AGA ACT CGG TGA TAA AAC CAA CTP TGA CRT TGT TGT TCG GGC AAA GCA GAT	
A K Q T Q * N Q L Y D I V V R A K Q D	
Q S R Q L S D K T N Y D I V V R A K Q D	
K A D H S V I K P T M T L L F G Q S R C	
511/171	
TTP GCA GAA GTP GAT TCA AGG GAA ATT TAA AAC TAT TGC ATT TGC ACA CGA TTC AAC TCG	
F A E V D S R E N * N Y C I C T R F N S	
L Q K L I Q G K I K T I A F A H D S T R	
C R S * F K G K L K L H T I Q L V	

FIG. 19B

541/181	TGT GAT CCA GTC TTA CAT' TCA GTA TGG TAA TGA AGA AGA C D P V L H S V W * R E K T G F R * R	571/191	ACA GAG AAA ACA GGC TTT TGA AGA V I Q C Y X Q Y G N E E Q R K Q A F E E
601/201	ATG GCG AGA TGA TTP GGT TGA GRT MAG TAA AGC CAA ATA TPC GAG AAA TAT TGT TAA GAA I A R * F G * V K * S Q I F E K Y C * E L R D D L V E I S K A K Y S R N I V K K C E H I W L S * V K P N I R E I L L R N	631/211	
661/221	ATP ACT GTC GTC TGG MAG TAA ACC ACA GAP TGC AGA GAT ATT CAG AGG TTP TAA AGG CCA I S H V W K * T T D C R D N Q K F * R P Y L H Y G S K P Q I A E T I R S F K G H W S C W E V N H R I Q R S E V L K A T	691/231	
721/241	CGT GAG CAA GAP GCT GCG GCA TGC GGA AGC ATC AGC CGT CGT GGA GTA CGC ATA CAA TGA R H F D A A C G S I S H R G V R I Q * V R K M L R H A E A S A I V E Y A Y N D * G R C C G H R K H Q P S T H T M T	751/251	

MIG. 19C

781/261	CAA AGC CAT TTT GCA GCA GAG GAA CTT GCT GAC GGA AGA GCT CTA TGG GAA CAC ATT TCA Q S H R G A E H A D G R A L W E H I S K A I L R Q R N H L Y G H T F Q K P R W S R G T C * R K S S H G T H F S		
841/281	GCT TTA CAA GTC AGC AGA TCA CCG AAC TCT GGA CAN AGT GTT AGA GGA ACA GCC AGA AAA A L Q V S R S P N S G Q S V R G T A R K L Y K S A D H R T L D K V L E V Q P E K R T S Q Q T E L W T K C * R Y S Q K N		
901/301	ATP AGA ACT TAT TAT GGA TGA ATT GAA ACA GAT TCT AAC TCC ATT GGC CCA AAA GGA AGC I R T Y Y G * H E T D S H S N G P K G S L E L T M D E H K Q I L T P M A Q K E A A H L I W M K * N R F * L Q W P K R K L		
961/321	TGT GAT TAA GCA CTC ATT GGT GCA TAA AGT ATT CTT GGA CTT TTT TAC CTA TGC ACC CCC C D * A L I G A * S I L G L F Y L C T P V T K H S L V H K V F L D F F T Y A P P * L S T H W C I K Y S W T F L P H H P P		
1021/341	CAA ACT CAG ATC AGA ATT GAT TGA AGC CAT CCG CGA NGC GGT GGT CTA CCT GGC ACA CAC Q T Q I R H D * S H P R S G G L P G T H K I R S E H I E A I R E A V V L A H T H S D Q K * L K P S A K R W S T W H T H		
811/271	871/291	931/311	1051/351

FIG. 19D

1001/361	ACA CGA TGG CGC CAG AGT GGC CAT GCA CTC CCT GTC GCA TGG CAC GCC CAA GGA CAG GAA
T R W Q S G H A L P V A W H A W A Q G Q E	H D G A R V A M H P C L W H G T P K D R K
T M A P E W P C T A C G M A R P R T G K	
1111/371	
1141/381	AGT GAT TGT GAA AAC ATT GAA GAC TTA TGT TGA AAA GGT GGC TAA TGG CCA ATA CTC CCA
S D C W H N D L C * K G G * W P I L P	V I V K T M K P Y V E K V A N G Q Y S H
* L * K Q * R L M L R W L M A N T P P I	
1171/391	
1201/401	TRP GGT TTT ACT GGC GGC ATT TGA TTG TAT TGA TAC TAA GCT TGT GAA GCA GAT ATT
F G Y T G G I * L Y * * A C E A D N	I, V L A A F D C I D D T K L V K Q I I
W F Y W R H L I V L M I S L * S R * S	
1231/411	
1261/421	CAT ATC AGA ATT TAT CAG TTC ATT GCC TAG CAT AGT AAA TGA CAA ATA TGG AGG GAA GGT
H I R H Y Q F I A * H S K * Q I W K E G	I, S E I I S L P S I V N D K Y G R K V
Y Q K L S V H C L A * * M T H M E G R S	
1291/431	
1321/441	CCT ATT GTA CTT ACT AGG CCC CAG AGA TCC TGC ACA TAC AGT ACG AGA ATT CAT TGA AGT
P I V I, Y L S P Q R S C T Y S T R N H * S	I, I, Y L L S P R D P A H T E I E V
Y C T Y * A P E I L Q Y E K S L K P	
1351/451	

FIG. 19E

1381/461	1411/471
GCT CCT AAA AGG AGA TGG AAA TGC ACA CAG TAA GAA AGA TAC AGA GGT CCG CNG ACG GGA	
S A K R R W K C T Q * E R Y R G P Q W G	
L Q K G D G N A H S K D T E V R R R R E	
C K K E M E H II V R K I Q R S A D G S	
1441/481	1471/491
GCT CCT AGA ATC CAT TCC TCC AGC TTT GTT AGG CTA CCT GCA AGA ACA CGC CCA AGA AGT	
A P R I H F S P A L S Y L Q E H A Q E V	
I I E S T P R L Q I C * A T C K N T P K K W	
S * N P R L Q I C * A T C K N T P K K W	
1501/501	1531/511
GGG GCT AGA TAA GTC TGC GTG TGT GTT GTC TCT GGG ATC TGC CMC TGG AGA	
G A R * V C V C V L V S D I L G S A T G D	
V I D K S A C V C W C L T F W D I P L E T	
C * I S L R V C W C L T F W D I P L E T	
1561/521	1591/531
CGT TCA GCC TAC CAT GAA TGC CAT CGC CGC CTT GGC AGC AAC AGC ACT GCA TCC TGG TGG	
R S A Y H E C H R Q L G S N R T A S W W W	
V Q P T M N A I A S L A T G L H P G G	
F S L P * M P S P A W Q Q D C I L V A	

FIG. 191

1621/541	CDA CGA CGG MGA GCP TCA CAT TGC AGA ACA TCC TSC MGG ACA ACT AGT TCT GAA GTG GAT	1651/551
Q G R R A S H C R E I A E H P A G H L V I L K W L	R T S S R V V	
K D G F I L H I A Q N I L Q D I * F * S G *	R V V	
R F F S F T L Q N I L Q D I * F * S G *	L	
1681/561	ANT AGA GCA AGA TAA AAA GAT GAA AGA AAA TGG GAG AGA AGG TGG TTT TGC AAA AAC ACT	1711/571
W R A R * K D E R K W E R R R F C K N T	R E R R R F C K N T	
I F Q D K K E N G R E G C F A K T L	R E G C F A K T L	
* S K I K R * K K W G E K V V L Q K H L	G E K V V L Q K H L	
1741/581	TGT AGA GCA TGT TGG TAT GAA GAA CCT GAA GTC CTG GGC TAG TGT AAA TCG AGG TGC CAT	1771/591
C R A C W Y E E P V L G * C K S R C H	V L G * C K S R C H	
V E H V G M K N L K S W A S V N R G A I	E P G L V * I R V P L	
* S H L V * R T * S P G L V * I R V P L	1801/601	
1831/611	TAT TCT TGC TAG CCT CCT CCA GAG TGG TGA CCT GGA AGT TGC AAA ACT CAA AGC TGC	1871/631
Y S F * P P E L * P G S C K Q S C C	P G S C K Q S C	
J I S S L L Q S C D L E V A N K V A A	L Q T K S K R L H	
F F I A S S R V V T W K I Q T K S K R L H	1861/621	
ACT GAA AAG CTP GAT TCC TAC PCT GGA AAA AAC CAA AAC CAG CAA AGG AAT AGA ATT	1891/631	
T F K I D S Y T G K N Q K H Q R N R W	R E K P T K S T P S K G I E I	
I R S I P T L E K T K P A K R * K F K * K F	K R S I P T K P A K R * K F	

FIG. 19G

1921/641	TCT ACT TGA AAA ACT GAG CAC ATA GGT GGA RAG AGT TAR GAG CAA GAT GGA ATG ATT TTT S * K T E H I G G K S * E Q D G M I F L I E K L S T V E R V K S K M E * F F Y L K H * A H R W K E I R A R W D F F
1931/661	TCT GTP CTC TGT TCT GTP TCC CAA TGC AGA AAA GAA CGG GTC ACC ATA CTG GTA S V I C S V S Q C R K E G V G S T I L V L R S V I F P H A E K K G * G P P Y W * C S I F C F P H Q K R R G R V H H T G N
2041/681	ATP GCC GAA CTC TGT ATA TGT GTP TCT GCT TGG TAT CTA TTP ATA TAA ATP GTP I G V L C T C V S S L Y T N L F I * I V L G Y S V Y V R L I C T R I Y L Y K L F W G T L Y M C F F V Y E S I X I N C F
2101/701	TTP TTA ATT GGT F I H G F * M F K W
1951/651	
2011/671	

FIG. 19II

FIG. 20A

1305 221	GAT GAA GAC ACT TAT TAT CAA TGG CAG GGT AAA AAG ACT TCT GCT CAG TAC TAT ATT AAC AAC GCC GGT GTA TCT D E D T Y Q W Q K K T S A Q Y Y I N N A G V S	1379 245
1380 246	GCA GAA GAT GGG TGC ATT TGG GGT ACT TCT GGT AAC TGG GCT CCA CTA GTG TTA GGT GCT GGT A E D G C I W G T S G S D V G N W A P L V L G A G	1454 270
1455 271	TCC ACT AAT GGA GAA ACA TAC TCG TTG ATT CCA AAC CCC AAC AGT AAC CAA GCT GCC AAC TTT AAC GTT AAA S T N G E T Y L S I P N S N P N S N Q A A N F N V K	1529 295
1530 296	ATA GTT GCA TCC GAT GGC GCT AAC GTT CAG GGC AGC TGT GCG TAT GAA GAT GGC TCT TTC ACC GGA GAT GGT TCC I V A S D G A N V Q G S C A Y E D G S F T G D G S	1604 320
1605 321	GAT GGT TGC ACA GTC GTT TCT GTT TTA TCT GGA TCT GCT GAA TTT GTT TTC TAT TAA GTCACTCTCTCTCTGGTAAAGA ATG D G C T V S V L S G S A E F V F Y *	1685 1
1686 2	TCT TGT ATT TTG ATA CCC TCA ATT CCC CTT ATT CTT CTT CTC TCT ATT TAT TAT TAT ACA TTG GGA S C I L I P S I P L I L F L S I Y Y T L G	1760 26
1761 27	TTC CGT TAT ATT TTT CTC CTT TCA GTT CAT TTT ACT TCT TAA AAAGTTTCGTTGATCGTATT ATG CTA TGG ATT CAA F R Y I F L L S V H F T S *	1838 5
1839 6	AGA TTT TCT TTT CTC TCT CTT CAA GGT GTC ATT ACG GTT TTC ATT AGT TCG TTT ATT TTT TTG TTA R F S F L S L Q G V L C I T V F F S S F I F F L L	1913 30
1914 31	ACA AGG TGT TTG TAT ACA TAT ATA TAA ATT ATG GAA ATA TAA TAG TGTTTATTTGTTACTTCCCTGGAGTTGCAACAGAACTA T R C L Y T Y I * M E I L *	1998 5
1999 1	ACAAG ATG CCA TGC TGT TTT TCA TTT GGC TAT AAA ATT AAC AGT ATC CTA GTC CTT GTG TTC GGC TTT M P C C F F S F G Y K N N S I L V L F G T	2072 23
2073 24	AAA ATG GAA TGT CAA ACC CCA TAA TTC CCTTCTTCACACGGACAAACCGCCTAGTAGTCGATTTCAAGAGACTCTA ATG CTT TGA ATA K M E L Q T P *	2160 3
2161 1	TAATTTTTCITCAAAATTCCTTAAGGGTGTATCGA ATG AGT AGA CAT CAA TCA AGA GTT TCA TGG TCT CCC CGT ATT TGC M S R H Q S R V S W S P R I C	2245 15
2246 16	CGC TGC TTC TAA TATTTTGGAGTGTAGCCATTCAATCAAATCTTCGATA ATG CCA CTT TTT ACA TAT ACA CGA CGA CAA R C F *	2331 10
2332 11	CCC ACA GTA ACA CTC ATG ACT AAA TTT TCA TCA GTA CTT AAT GTC ATG TAA GGG GCT AAC GAA ATC AAT GCA P T V T L M T K F S S V L N V M L G A N E I N A	2406 35
2407 36	ATG GGC GTF TCT CTA TAA ACG ATG ATA TGC GTA TTC ACC ACT GGA TCC M G V S I * M 1 C V L F T P G S	2457 10

FIG. 20B

1	TGTTTAGTGTCAACTTACATGCCATTGGCC	ATG AAT ACC AAG GCT TGC TCA GCT TCT GCA GCA GTT CAA CCC TTT CCA ATA CCG CCA	100
1	M N T K A C S A V Q P F P I P	181	
182	ATG CGT CCT CAA AAC GTT AGT TTA GTC GTG CTC AAC CGC TAT TTT TGG TTT TAT CTT CGT TTC TTT CTC CTG AAC	181	
20	M R P Q N V S L V L N R Y F W F Y L, R F F L L N	19	
257	GAC ATT CGT CAC GAA AAT TGC GGC GGA AAA TTP CCT GAT GCG GAC ACT TTT TCC CGA TCC GGA CAT GCC TTT TTT	256	
45	D I R H E N C G K F P D A D T S R S R S G H A F F	44	
332	TGG CGT TTC GCG TCA GTC AAT AGA AGT TTC AGA TCT ACA TTA GGA AGA ACC AGA AAA TAG CCATTA ATG CTT TCA	331	
70	W R F A S V N R S F R S T L G R T R K *	69	
407	GCA TAG CACAGCCTAGCTGTATCTAAATAAG ATG TAG ACTGGTTGCATTGGAAAGGTTTGTTGTAAGAAAAGCAATACTTGAGGT	406	
4	A *	3	
502	AAAACAAGGAAAAAACACTTTACTAACTAATCCAAATATCCCTTTGAGAA ATG AAA TTC TCA ACT GCC GTT ACT ACG	501	
1	M K F S T A V T A V T	2	
590	TGG ATP AGT TCT GGT GCC ATC GTG TCT GCT TTA CCA CAC GTG GAT GTP CAC CAA GAA GAT GCC CAC CAA CAT AAG	589	
10	L I S G A I V S A L P H V D V H Q E D A H Q H K	9	
665	AGG GCC GTT GCG TAC AAA TAC GTT TAG GAA ACT GTT GTP GTC GAT TCT GAT GGC CAC ACT GTA ACT CCT GCT GCT	664	
35	R A V Y K Y V E T V D S D G H T V T P A A	34	
740	TCA GAA GTC GCT ACT GCT GCT ACC TCT GCT ATC ATT ACA ACA TCT GTG TTG GCT CCA ACC TCC TCC GCA GCC GCT	739	
60	S E V A T A A T S A I T S V L A P T S A A A	59	
815	GGG ATA GCG GCT TCC ATT GCT GTT TCA TCT GCT GCC TTA GCC AAG ATT GAG AAA ATC TCT GAT GCC GCT GCA TCT	814	
85	G I A A S I A V S S A A L A K N E K I S D A A A	84	
890	GCC ACT GCC TCA ACA TCT CAA GGG GCA TCC	889	
110	A T A S T Q G A S S S S A T S T S A T Q S S	109	
965	TCT GTT TCT TCA TCT AGT GAA GAA GCT CCA ACA TCT ACT GTC GTG TCA ACT TCT TCC GCA ACC CAA TCT AGT	964	
135	S V S S S E A P T V V S T S T S T S T S T Q S S	134	
1040	GCT TCT GCC ACT AAA TCT AGT ACT TCT TCC ACT TCA CCA TCT ACT TCT TCC ACT TCT TCC GCA ACC CAA TCT AGT	1039	
160	A S A T K S S T S P S T S T S T S T S T Q S S	159	
1115	TCC TCT TCC TCT TCC TCC TCC TCC TCC TCC TCC TCT ACT	1114	
185	S S S S S S S S S S S S S S G S G S I Y G D L A	184	
1190	GAC TTT TCA GGC CCA AGT GAG AAA TTC GAA GAC GGC ACT ATT CCA TGT GAC AAA TTC CCA TCT GGT CAA GGT GTC	1189	
210	D F S G P S E K F Q D G T P C D K F P S G Q G V	209	
		1264	
		234	

FIG. 21A

FIG. 21B

Pile. 1 (Nca3)	1	
Pile. 1 (Uth1)	.....	.....
Pile. 1 (Sag1)	.....	.....
Consensus	.....	.....
Pile. 1 (Nca3)	51	
Pile. 1 (Uth1)	VYFLIPHSFL	FENQILVLP
Pile. 1 (Sag1)	.....	.....
Consensus	.....	.....
Pile. 1 (Nca3)	101	
Pile. 1 (Uth1)	APSAPAPAPA	DSHEDHDKD
Pile. 1 (Sag1)	ASTAVLAAPA	EKPRAV
Consensus	AIVSALPIVID	.....
Pile. 1 (Nca3)	151	
Pile. 1 (Uth1)	.....	.....
Pile. 1 (Sag1)	ATATAATTTT	TSVLIAPTSSA
Consensus	.....	.....
Pile. 1 (Nca3)	201	
Pile. 1 (Uth1)	.....	.....
Pile. 1 (Sag1)	.....	.....
Consensus	.....	.....
Pile. 1 (Nca3)	250	
Pile. 1 (Uth1)	SSSEKID	TSEQKRDGGF
Pile. 1 (Sag1)	SSSSSSSS	QDGITVKC
Consensus	ASTSQGASSS	EDGTISCF

FIG. 22A

Pile.1 (Nca3)	.....	SDRPSV	NGIVSLDWLG	FGCWA SVMDM	DANPSSECKD
Pile.1 (Uth1)	.....	SDRPSG	QGAVSLDWLG	IGCWA S IMDM	NGNTATSCQD
Pile.1 (Sag1)	SATKSSTSSP	SPSTRSSTST	SSTSSSSSSS	SSSSSSSNM	DTSGGSCKE
Consensus	-----	-----	-----	-----	-----
300					
Pile.1 (Nca3)	GYYCSYACEP	GMSK TQWPSD	QPSDGKSVGG	LYCKNGYL R	TNTDTSDLCS
Pile.1 (Uth1)	GYYCSYACSP	GYAKIQWPSE	QPSDGRSVGG	LYCKNGKL R	SNTDTNSLCV
Pile.1 (Sag1)	GSYCSYSCQP	GMSK TQWPSD	QPSDGRSVGG	LLCKNGYL R	SNTDADYCIE
Consensus	G - YCSY - C - P	G - RTQWPS -	QPSDG - SVGG	L - CKNG - LY R	- NTD - - LC -
350					
Pile.1 (Nca3)	TDETSAKAIN	KKSDSIALCR	TDYPGSENMV	IPTVVDGGDS	QPIISVVDED T
Pile.1 (Uth1)	EGOGSSAOAVN	KVSGSI AICG	TDYPGSENMV	VPTVVGAGSS	QPIINVIKEDS
Pile.1 (Sag1)	WGVEAA YYVS	KJ,SKGVAI CR	TDYPGTENMV	IPIIYVEGGSS	I,PLTVWDODT
Consensus	-----	A - - -	K - S - - A - C -	TDYPG - ENMV	- PT - V - - G - S - P - - V - - D -
400					
Pile.1 (Nca3)	YYQWQGKKTS	AQYYTNNAGV	SAEDGC IWGT	SGSDVGNWAP	LVIGAGSTNG
Pile.1 (Uth1)	YYQWQGKKTS	AQYYVNNAGV	SWEDGC IWGT	EGSGVGNWAP	VVLGAGYT DG
Pile.1 (Sag1)	YFPTWEGKKTS	AQYYVNPGV	SWEDGC IWGT	SGSGIGGNWAP	LNFGA ASTGG
Consensus	Y - W - GKKT S	AQYY - MN - GV	S - EDGC IWGT	- GS - - GNWAP	- - GA - - T - G
450					

FIG. 22B

451

Pile.1	(Nca3)	ETYLSSLIPNP	NSNOQAPANFNV	KIVASDG.AN	VQGSCAYEDG	SFTCGDS
Pile.1	(Itch1)	ITYLSSLIPNP	NNKEAFNFNT	KIVAT'DG.S'R	VNGACSYENG	GSDGC
Pile.1	(Sag1)	VTYLSLIPNP	NNSDALNNYV	KIVAAADDSSN	V1GECVYENG	VYSGSGSDGC
Consensus		-TYLS-TPNP	N---A-N-N-	KIVAD-----	EFSG.GADGC	
Sun4		....SLIPNP	NNGNALNPNV	KIVAAADDSSST	VNGECIYENG	--G-G-DGC
						SFSSGGSDGC

501

Pile.1	(Nca3)	TVSVIISGSAAE	FVFYZ	515	
Pile.1	(Itch1)	TVSVTSGSAN	FVFYZ		
Pile.1	(Sag1)	TVSVTSGKAH	FVLYN		
Consensus		TVSV-SG-A-	FV-Y-		
Sun4		TVSVTAGKAK	FVLY.		

FIG. 22C

EIGHT REPEATS IN UTH4

193	L a t D q F G c r F L Q K K L E
231	L i l D p F G n y L V d K i c D
267	I s i n q Y G t r s L Q K i I D
310	L i n D I n G n h V I Q K c I f
348	I s t H k h G c c V L Q K i L s
384	L i n D q F G n y I I Q f i L D
422	L s c l k F s s n V V e K f I K
487	L i r D n F G n y A L Q t I L D



HYDROPHOBIC



CHARGED

FIG. 23

UTH4	L <i>a</i> tD <i>q</i> F <i>G</i> CRFLQKKLE	
YGL023	L <i>c</i> kD <i>q</i> H <i>G</i> CRFLQK <i>q</i> LD	
PUMILIO	F <i>s</i> qD <i>q</i> H <i>G</i> SRFIQQKLE	
HUMAN	F <i>s</i> qD <i>q</i> H <i>G</i> SRFIQLKLE	
		1
	L <i>i</i> lD <i>p</i> F <i>G</i> NYLIQK <i>i</i> CD	
	L <i>m</i> <i>t</i> D <i>s</i> F <i>G</i> NYLIQK <i>i</i> LE	2
	L <i>m</i> <i>t</i> D <i>v</i> F <i>G</i> NYVIQK <i>f</i> FE	
	L <i>m</i> <i>r</i> D <i>v</i> F <i>G</i> NYVIQK <i>f</i> FE	
	I <i>s</i> <i>i</i> N <i>q</i> Y <i>G</i> TRSLQK <i>i</i> ID	
	I <i>s</i> <i>l</i> N <i>p</i> H <i>G</i> TRALQK <i>i</i> IE	3
	L <i>a</i> <i>l</i> Q <i>m</i> Y <i>G</i> LRVIQK <i>q</i> LE	
	L <i>a</i> <i>l</i> Q <i>m</i> Y <i>G</i> LRVIQK <i>q</i> LE	
	L <i>i</i> <i>n</i> D <i>l</i> NGNHVIQK <i>c</i> IF	
	L <i>s</i> <i>k</i> D <i>l</i> NGNHVIQK <i>c</i> LQ	4
	C <i>v</i> <i>k</i> D <i>q</i> NGNHVVQK <i>c</i> IE	
	C <i>v</i> <i>k</i> D <i>q</i> NGNHVVQK <i>c</i> IE	
	I <i>s</i> <i>t</i> H <i>k</i> H <i>G</i> CCVLQK <i>i</i> LS	
	I <i>a</i> <i>t</i> H <i>r</i> H <i>G</i> CCVLQR <i>c</i> LD	5
	L <i>s</i> <i>t</i> H <i>p</i> Y <i>G</i> CRVIQRI L E	
	L <i>s</i> <i>t</i> H <i>p</i> Y <i>G</i> CRVIQRI L E	
	L <i>i</i> <i>n</i> D <i>q</i> F <i>G</i> NYIIQFILD	
	L <i>t</i> <i>l</i> D <i>p</i> F <i>G</i> NYVVQY <i>i</i> IT	6
	L <i>i</i> <i>q</i> D <i>q</i> Y <i>G</i> NYVIQH <i>v</i> LE	
	L <i>v</i> <i>q</i> D <i>q</i> Y <i>G</i> NYVIQH <i>v</i> LE	
	L <i>s</i> <i>c</i> I <i>k</i> F <i>S</i> SNVVEK <i>f</i> IK	
	L <i>s</i> <i>i</i> H <i>k</i> F <i>G</i> SNVIEK <i>i</i> IK	7
	L <i>s</i> <i>q</i> H <i>k</i> F <i>A</i> SNVVEK <i>c</i> VT	
	V <i>l</i> <i>s</i> Q <i>h</i> F <i>A</i> SNVVEK <i>c</i> VT	
	L <i>i</i> <i>r</i> D <i>n</i> F <i>G</i> NYALQT <i>l</i> LD	
	L <i>i</i> <i>n</i> D <i>s</i> Y <i>G</i> NYVLQT <i>a</i> LD	8
	M <i>m</i> <i>k</i> D <i>q</i> YANYVVQK <i>m</i> ID	
	M <i>m</i> <i>k</i> D <i>q</i> YANYVVQK <i>m</i> ID	

FIG. 24